

The Evening Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1463.—VOL. XXXIII.

London, Saturday, September 5, 1863.

(WITH) (STAMPED.....SIXPENCE.
(SUPPLEMENT) (UNSTAMPED..FIVEPENCE.

M R. JAMES CROFTS, SHAREBROKER,

No. 1, FINCH LANE, CORNHILL.

Mr. Crofts transacts business, in the way of PURCHASE or SALE, in every description of stocks, but particularly in BRITISH MINES, in no case departing from the position of a broker, at net prices. All orders meet with the utmost punctuality and zeal, and advice given as to the nature and eligibility of INVESTMENTS, when required; EXCHANGES OF STOCK effected on the most advantageous basis, subject only to one commission.

The market improves for most shares. Mr. Crofts has business in North Wales Lead Mines, Cefn Cileon, Pentre Lygan, Central Minera, and Pant-y-Pynew, and refers to his letter in the Journal, p. 628, on their peculiar merits as investments.

FOR SALE.—120 West Trevelyan, 9s. 2d.; 20 Unity, 10s. (call paid); 50 Illogan, 7s. 6d. (call paid); Chiverton; 200 preference North Minera, 7s. 3d.

BUYER OF Gornamens, and North Minera old shares at 2s. 6d. net.

RECOMMENDED FOR IMMEDIATE PURCHASE.—Clifford Amalgamated.

* Mr. Crofts' Circular, No. 21, will be published on Friday, the 11th September.

M R. JAMES LANE, No. 44, THREADNEEDLE STREET,

LONDON, E.C.

JAMES LANE has FOR SALE, at net prices:—20 Arthur; 20 Boscawen, £2; 5 Bassett and Grylls, £2 1/2; 100 Bettany Silver-Lead (Limited), £2 1/2; 25 Creb, £1 16s.; 20 East Carn Brea, £3 1/2; 10 East Lovell; 100 East Broniford (2 paid up), 11s. 6d.; 20 Gurney, 30s.; 50 Great Wheal Busy, £3 1/2; 50 Hawkmoor, 5s.; 20 Ludcott, £3 1/2; 30 Lady Bertha, 10s. 6d.; 30 New South Caradon; 20 New Wheal Martha, £3; 10 North Croft, £3 1/2; 20 North Jane, 2s.; 100 North Minera (preference), 5s.; 100 Silver Mountain (£2 paid), £1 1s.; 20 St. Just Consols, 15s. 6d.; 20 St. Just United, £3 1/2; 200 Sorridge Consols, 6s. 9d.; 10 Trevermayne, £1 1/2; 10 Vigna and Clogau, £3 1/2.

STOCK AND SHARE DEALER.—MR. PETER WATSON, ENGLISH AND FOREIGN STOCK, SHARE, AND MINING OFFICES, 79, OLD BROAD-STREET, LONDON, E.C.

TELEGRAPHIC MESSAGES TO BUY OR SELL RAILWAY, BANK, MINE, AND OTHER SHARES AND STOCKS, PUNCTUALLY ATTENDED TO ON COMMISSION, OR AT NETT PRICES FOR CASH, OR FOR FORTNIGHTLY SETTLEMENTS, WITH ADVICE AS TO PURCHASES OR SALES.

EIGHTEEN YEARS' EXPERIENCE.

(Two in Cornwall and Sixteen in London.)

Bankers: Union Bank of London.

Every information can be obtained on personal application or by letter, as to purchases and sales of mine and other shares, and the best investment for capital.

From the close proximity of his Offices to the Stock Exchange, as well as the Mining Exchange, Peter Watson is enabled to act with promptitude on all orders entrusted to him, which at all times are carried out with punctuality, and to the best advantage of his clients.—September 4, 1863.

M R. LELEAN, 11, ROYAL EXCHANGE, LONDON, E.C., HAS FOR SALE THE FOLLOWING MINING SHARES, free of commission:—

3 Bryn Gwlog.

5 Bassett.

5 Bedford United, £3 1/2.

30 Camborne Vein, 27s. 6d.

1 Caradon.

5 Cook's Kitchen, £2 1/2.

4 Clifford Amal., £3 1/2.

60 Cardigan Consols.

50 Drake Walls, 38s.

20 East Russell, £3 16s. 2d.

5 East Carn Brea, £3 7s. 6d.

10 East Chiverton.

10 East Trevermayne.

5 East Providence.

20 Great Fortune, £2 1/2.

10 Great Granville, £2 1/2.

10 Great Redrake.

5 Great Redrake.

10 Great Redrake.

IMPROVEMENTS IN ANCHORS.



We alluded in our last to the formation of an influential company for the purpose of manufacturing Martin's patent anchor, a large number of which are at present in use, and which has proved itself, after long practical application, to be thoroughly efficient. So long since as Aug. 1859, the Masters and Brethren of the Trinity House, Newcastle-on-Tyne, had a series of carefully-conducted experiments made in their presence; and so conclusive were the results obtained, that they gave a certificate that, having witnessed the several trials, they "did not hesitate to express their most complete satisfaction at the results, and at the same time to declare their full conviction of the astonishing superiority, in every respect, of Martin's Patent Anchor over all those in present use, both in a national and commercial point of view." This opinion has been fully confirmed by the numerous masters of vessels who have since adopted the anchor; the testimonials appended to the prospectus, and which bear various dates, extending to within the last few weeks, being of the most gratifying character.

The Trinity House tests at Newcastle appear to have been conducted in the fairest manner; the anchors were laid on level ground, and drawn together by a triple block with a chain-faul, and two winches having fly-wheels. Immediately upon the winches being set in motion, Martin's anchor is described as having at once begun to grip. By the time that Rodger's had turned over, as it must do before it can begin to grip, Martin's had obtained a firm hold of the ground. The motion of Martin's anchor gradually decreased as it sank into the ground, until it came to an almost dead stand; while Rodger's was drawn at a rapid rate towards it until the blocks met. The ground which each had traversed was then measured, and it was found that while Martin's had been drawn but 11 ft. 8 in., Rodger's had been drawn 54 ft. 9 in.—Rodger's is said to have literally cut through the ground like a knife, while Martin's ultimately stood immovable. This was observed in all succeeding trials. The trials were, without doubt, most satisfactory for Martin's anchor. The anchor is much admired for its lightness and portability, and it is calculated that it is hauled in with 50 per cent. less labour. From the above diagram the character and relative merits of the anchor will be at once understood, more especially when we state that in almost every testimonial which has been received Martin's anchor has been used to replace others of from 50 to 100 per cent. greater weight.

It is considered that the net profits which the company for manufacturing these anchors will realize will be very large; and in addition to this they have taken powers to extend its business not only to the manufacture of anchors, but also to chain cables and other metal work relating to shipping. Amongst the advantages which it is pointed out attend the use of Martin's anchor, it is stated that whilst its holding power so far exceeds that of all other anchors, it also bears the proportionate increase of strain required; that having no stock, and both flukes taking hold of the ground at the same time, it can neither foul nor become fouled; and, being composed of three main parts, it can be taken to pieces and stowed away with facility, the great advantages of which will be appreciated by all practical men; and that from the nature of its construction, it dredges well, can be tripped, catted, and fished much more easily than any other anchor. It is estimated that England has about 40,000 merchant ships of all sizes afloat, and about 2000 new ones are built annually. Allowing three anchors to each ship, the number required will be about 120,000 in all. Now, as each anchor lasts on an average only eight years, it follows that to supply wear and tear and loss consequent on shipwreck and other accidents, and to fit out new ships, above 15,000 new anchors are required annually. This is entirely independent of the Royal Navy and the export trade. The company estimates that one-fourth of the whole anchor trade of the country will fall into their hands, and that a profit of fully 30 per cent. will be realized upon the cost of manufacture, a percentage which certainly ought to satisfy the most usurious.

IMPROVEMENTS IN PUMPS.

We have so frequently referred to the advantages obtainable from the adoption of the improved chain-pump, invented by Mr. J. U. Bastier, that most of our readers are, doubtless, well acquainted with its merits. Like many other inventions of great practical utility, it has taken long to secure the appreciation of the public, and it is only by continued success of the few that have been erected, and the extraordinary perseverance of the inventor, that its reputation as an efficient pump has been at last fully established. Several pumps are now in course of construction, and, from the purposes to which they are to be applied, it is probable that compensation will be obtained for the outlay that has been incurred, and the obstacles which have had to be surmounted. Four of the pumps now upon order will be delivered in the course of a few weeks, and we do not doubt that the results obtained with them will create a favourable opinion of them in the several districts in which they are to be erected. The first of those in question is a large pump, to be applied to irrigation purposes in Algeria, by Mr. Majorel, the prefect of Oran, who, after the most minute examination of that exhibited at the recent International Exhibition, and a careful comparison of it with those of other exhibitors, considered that it was entitled to the preference. Two other pumps are to be sent to Egypt, Mr. Theuker, the engineer-in-chief of the projected railway from Alexandria, having decided to adopt them. Another is to be fixed at the works of Messrs. Samuel Berger and Co., the well-known starch manufacturers of Bromley-by-Bow, and we understand that negotiations are going on for several other pumps, which prove beyond question that the importance of the invention is now becoming appreciated.

Although we have already published the mechanical details of the invention, we take the opportunity of inserting a diagram of the pump, in order that its construction may be more thoroughly understood by those who did not inspect it at work whilst in the Exhibition. The improvements which Mr. Bastier has introduced are such that the leakage of water is even less than with the ordinary bucket pump, whilst there is no back action whatever, the water always flowing forward in a continuous stream, equal in volume to the full size of the tube which forms the body of the pump. In the accompanying diagram, A is the pulley by which the pump is put in motion, the motive-power being a steam-engine, water-wheel, or any other motor which may be at hand. This pulley is regulated by a fly-wheel (K), and is upon the same axle as the grooved wheel (G) which carries the chain of the pistons. F is the body of the pump, which is constructed of enamelled iron, the joints being flanged and bolted, so that perfect smoothness is obtained, whatever may be the length of the pump. The chain is provided with pistons of gutta-percha and vulcanised India-rubber, a metre apart, and the grooved wheel is so formed as to grip the chain firmly, yet never to permit the pistons to come in contact with it, so that abrasion is impossible. The pistons are marked H in the diagram, and when passing up the tube (into which they enter through the funnel-shaped mouth, E) packed sufficiently to prevent escape of water, yet not so tightly as to cause any appreciable friction; indeed, it has been found that four years continued use of a pump has not rendered the renewal of the India-rubber necessary, its elasticity apparently securing it from injury. The frame (N) carries the axle, and completes the pump, the whole apparatus not occupying more than one-fourth the space usually absorbed.

As soon as the pump shall have been fully tested at Oran, on the Alex-

andria Railway works, &c., we shall be glad to publish the results, and do not doubt that the favourable opinion we have so frequently expressed of the invention will be realized.

Original Correspondence.

ELECTRO-MOTIVE POWER—ECONOMIC PRODUCTION.

SIR.—In his admirable address at Newcastle, Sir W. Armstrong mentions electricity as being supposed likely to furnish a substitute for coal, and shows that battery action is too costly, because involving double decomposition. He also remarks that motion is convertible into electricity. Let me add that we shall probably find here a solution of the problem. By means of magnets and of motion the most powerful and steady currents of electricity can be generated to produce the light which nightly joins England to France, or for the deposition of metals, or the decomposition of water. This last most important application has by no means received due attention. Unsuccessful and imperfect attempts have been made to produce by this means oxygen and hydrogen gases in large quantities. Steam as the motive power is inadmissible, because, as is now known, the gases evolved will produce no more heating force than is required to raise the steam. But tide, wind, and water-mills furnish always cheap motive power. We have only to convert this into oxygen and hydrogen gases by means of magneto-electricity to supply ourselves with stores of fuel, so boundless as to enable us to contemplate with composure the incessant destruction of our coal seams—hitherto the strong foundations of British power and renown.

G. A. KEYWORTH.
Hastings, Aug. 31.

COPPER MINES.

SIR.—I have noticed several letters of late relative to the price of copper during the last two years: this great depression, I presume, has been owing to the large quantity of copper ore sent to this country from Cuba, Chile, &c.; but as one of the largest copper mines in the world, since the mines in the Island of Anglesey have ceased to be so productive, is said to be just exhausted, we may hope for better times at no distant period. Doubtless but for a great many of our once celebrated copper mines yielding so much tin of late years, many of these mines during this depression would have been wound-up. The tin has, doubtless, saved these mines from destruction, and it is hoped that many of these will ere long return to the dividend list of mines, and reward those whose patience must have been so severely tried by the constant calls made upon their purse-strings during this great depression. The Cobre Mine has, I believe, sent from 200,000 to 250,000,000. value in copper ore annually to Swansea since the year 1828 or 1829, and in 1833 the returns from this mine amounted to 357,000, while the Great Devon Consols has not yielded quite 2,000,000. The mines in Anglesey yielded 80,000 tons of copper ore annually for 50 years; and one lode, to the north of Marazion about a mile, yielded from the Old Wheal Fortune to the Godolphin Mines, a distance of five miles, copper ore to the value of 6,000,000.; but the districts surrounding the ancient town of Marazion may be said to have been almost deserted during the last half century. From the year 1720, the year the Old Wheal Fortune was discovered, up to 1820 more copper ore was shipped from the port of Saint Michael's Mount than from any port in Cornwall or Devonshire; and it is to be hoped there is some good fish still left in the sea, and some good mines to be again found in this district. A CORNISHMAN.

Sept. 1.

CORNISH MINES, AND SUPPLIES.

SIR.—I am exceedingly glad to find that the subject of supplies to Cornish mines is likely to be enquired into, and if I may judge by the very proper letters of your correspondents of last week and the week before, the whole question of supplies will be well ventilated; indeed, the whole system ought to be upturned, and placed upon a new and improved basis, if the lords of the land intend to have their ground worked by capitalists out of Cornwall, for I can assure you, here in London, very many gentlemen will never again touch a Cornish mine, they are so thoroughly disgusted with the mode of management. In one of the mines in which I was a shareholder I took the liberty to express my views to the principal agent, when down in Cornwall, and he told me at once—"I do not regard the shareholders a straw, for they may have shares to-day, and to-morrow we may have no more of them." No doubt, Sir, this is a view taken by most mine captains as to London adventurers, but where would the Cornish mines be if they were worked by Cornish capital only? It is, therefore, essential that the greatest care should be taken by mine agents as to how they spend the money intrusted to them. It should be expended in the best, the most economical, and conscientious manner in everything; for I believe that not only timber but other materials, such as steel, iron, coals, candles, &c., will bear a pretty deal of siting. I have long given my attention to these matters, and am free to confess that I am not at all satisfied with things as they are. Now, as to timber, I cannot give you a correct account of the measurements in the different mining districts; but I am informed that a wagon load of timber (say, 4 tons) taken to the mines from Plymouth, Looe, Fowey, or Charlestown is 200 ft. cube, but if the same wagon and horses took its load from the ports of Truro or Gweek, it would only carry 158 ft., although paid for carriage of 200 ft., and the merchants also will be paid for 200 ft.; if taken from the "Mount" or Penzance 154 feet, and from Hayle 160 feet—all of which will go to the mines as 200 feet of timber. These differences surely require to be explained very clearly before I, or any other London shareholder, can comprehend them. I should very much like to see a monthly price list published in the Journal for goods charged at the different mines, then shareholders living in London or elsewhere would have some idea as to the reasonableness of charges on timber or any other articles. Perhaps, your excellent correspondent, "An Old Adventurer," will enlighten us with some facts and figures on the subject.

AN OUTSIDER.

CORNISH MINES, AND SUPPLIES—TIMBER.

SIR.—Norway timber is charged with duty by a measurement quite different from that by which the quantity is generally charged to the mines. The Customs' measure is the mean of the diagonal and the square, the divisor being 183; this is considered to give the true contents, allowing for the defective angles. The merchant measurement is the mean of the two sides, the divisor being 144 (as if there were no defective angles), and this gives about 22 per cent. more than the Customs' or actual measurement; but this measure is often mere guess work, and the consumer may be sure he gets no benefit by that. At the Devon Consols Mine this practice was discovered many years since, and was considered so objectionable that they resolved on being their own importers; and the timber they use, though more costly at first, is cheaper in the end. Their timber is squared, by which a much greater quantity of the sap is removed, and the timber more durable, and, probably, the scantling of it is not so large, and thus a double saving is effected. The objectionable practice herein referred to was made known to the late Mr. Treffry; and the tenders for his mines have been required to be given in accordance with the Customs' measure, and the quantity can thus be checked at the Custom House. The difference of price may thus be accounted for, but the difference of locality must affect this question considerably.—St. Austell, Sept. 1. OBSERVER.

LOOK TO YOUR ARTICLES OF ASSOCIATION.

SIR.—Mr. Brook is clearly in error in stating "that promoters and directors cannot, as stated by 'Lux Obscura,' bind shareholders to articles which have never been submitted to them." Promoters not only possess this power, but they actually cannot register a company under the Act of 1862 without exercising it, either by omission or commission. In the one case, by omitting to register special Articles of Association, they impose upon the company the adoption of Table A. In the other, they can impose upon the company special articles, either superseding or modifying Table A, by simply having such articles signed by the subscribers to the Memorandum of Association, and attached to, and registered with, the latter (see Clauses 14 and 15 of the Act, 1862). In neither case is it necessary to consult the shareholders—indeed, it is not possible to do so, as companies are formed and registered before the general public are invited to take shares; and it is distinctly stated, in Clause 16, that the members of the company (of course, either present or future) are bound by such articles to the same extent as if signed by each. Shareholders, however, have the power, by Clause 50, of superseding or altering the Articles of Association, by special resolution; and this, no doubt, was the case with the company of which Mr. Brook is secretary, where, I presume, no articles were registered with the Memorandum of Association, and the directors were consequently obliged, in order to do away with Table A, to conform to the formalities correctly referred to by him. But it is evident that, by adopting the special articles when registering the company, there would have been no necessity to consult the shareholders at all. As regards the particular clause which has given rise to this discussion in the Journal, I agree with "Lux Obscura," that it is an objectionable one. No arbitrary power should be vested in directors which might be liable to be abused by them, and the exercise of which would at the best be a most invidious and unpleasant duty. Rule 10 of Table A affords quite

sufficient protection, and a refusal to register a transfer of shares on any other ground than therein stated would be a reflection on the credit of the transfers, and might render the directors liable to an action.—Liverpool, Sept. 1.

R. M. C.

LOOK TO YOUR ARTICLES OF ASSOCIATION.

SIR.—I quite agree with the remarks of your correspondent, that it behoves any persons taking shares in a new company to look previously at the Articles of Association. I find in those of a recently-projected company (the name of which I will not now disclose, though I may hereafter), in which I have taken shares,—1. That there is no amount of capital stated, and, therefore, no limit to it;—2. That no mode of application is provided for;—3. That there is no qualification of directors, though their remuneration is not forgotten;—4. That a power is given to the board, independently of the shareholders, to borrow 20,000.£. Such articles as these need no comment. But, surely, if any applicant for shares agrees to take them, "subject to the Articles of Association," as is now the form, he must be both legally and equitably bound by them, whatever they may afterwards turn out to be.

CAUTION.

FRAUDULENT PROMOTERS OF JOINT-STOCK COMPANIES.

SIR.—Such companies as the above have so accumulated of late, that it is high time some protective society should be formed, not merely to expose the gross and bare-faced frauds which are a disgrace to the commercial world, and the character of the British mercantile community, but *definitely* and *positively* to institute proceedings against the culprits, so as to bring them under the chastisement of the criminal law, which I feel persuaded can be done in many cases if energetic steps were taken. It would be a national benefit to expend 10,000.£. yearly in instituting such proceedings against some of your honourable directors, who give their names, and take free shares (fully paid-up) and sundry fees without services, talent, or interest. Your correspondent, as a small man, would be money in pocket by the outlay of 10.£. yearly, and is willing to make an annual sacrifice to clear out some of these pests of honest adventurers, who willingly subject themselves to honest losses beneficial to the country at large, but who in many cases withdraw their capital from all such undertakings, because of the gross frauds and misrepresentations which accompany many, if not most, public undertakings of the present day.

Directors generally, I presume, are not themselves the schemers, but when they give their names under such circumstances of personal advantage, they richly deserve to be punished, if possible, for their conduct, by which they become annually the ruin of thousands of honest hard-working men, who enter into such concerns, not with confidence in the schemers, but trusting entirely to their names as men expected to investigate the representations. But these bribes have converted our honourables, our colonels, our nobility, and even our clergy, into instruments of dishonesty, and it is high time a stop should be put to it, by chastising severely some of them. Even one or two examples would infuse a terror through the whole race, that would in some cases bring about retribution, and at any rate put a stop to the further success of fraudulent companies, if the public would but insist on certain conditions in every new undertaking.

I suggest that a society be formed, with branches in each commercial town, who should be authorised to investigate every new joint-stock company, and that the public should point blank refuse to entertain any undertaking unwilling to be subject to the requirements and investigation of the said society. In other branches we have protection, why not in these? We have our Lloyds for ships, and our Guardian societies for tradesmen. Why not, therefore, some company assessors? Let every shareholder sum up his losses by fraudulent promoters for the last two years, and I am sure he will find good cause to feel liberally disposed to support a properly, honestly organised institution, even if he have no desire to remove evil for the sake of benefiting society. Of course, in such a protective society directors must be men of unqualified integrity, giving their services gratuitously, and holding no management in any public commercial company; paid secretaries and clerks should, so far as possible, be men selected specially calculated to promote the objects of the society, liberally treated, but not endowed with sinecure appointments.

COMMERCIAL.

TO THE SHAREHOLDERS OF EAST CARADON MINE.

GENTLEMEN.—With respect to the meeting of the members of the Mining Exchange last week, I beg to inform the shareholders of this mine that I took the earliest possible opportunity of informing them of the discovery, as soon as I could ascertain the value of the lode cut; and to them alone I am accountable as the manager of their property, as I feel quite indifferent to the opinion or resolutions expressed by any "bull" or "bear" of the Mining Exchange: the chief speaker at that meeting not being a shareholder, and the gentleman applying for a peremptory order to inspect being a holder of one share. My duty being to advise the registered shareholders of any discovery—men who have been my co-partners from the commencement, and have borne the anxiety and expenditure of the mine, and who now should realise its benefits, and not to those who, by anonymous letters and scandalous advertisements, seek to frighten them out of their property by every means in their power. It is to the shareholders I again repeat, we have in East Caradon a good, permanent dividend mine.

JAMES SECCOMBE.

ALFRED CONSOLS MINE.

SIR.—Although, fortunately, not a shareholder in this mine, I am induced, in the interests of several of my clients, to beg the favour of a space in the Journal, for the purpose of calling attention to the affairs of that luckless adventure. It would appear that, during the past twelve months, upwards of 20,000.£. has been demanded of the shareholders for purchase of Great Alfred Mine, and for calls. During that period the shareholders have been fed with reports, invariably favourable, signed by Capts. Bawden and Teague; and, in a report forwarded about May last, those gentlemen seem to have considered the prospects most encouraging. The hopes of the credulous adventurers were, however, soon to be crushed in a most mysterious manner; for in a circular issued by the purser, June 11, a meeting was announced to wind-up the mine, in consequence of its "continued poverty, and the numerous relinquishments of shares." On June 23, a meeting, consisting of the committee, and about two disinterested shareholders, was held at Hale, and a circular sent round afterwards, announcing another call, and that the mine was to be stopped and the materials sold off as soon as possible. The committee, also, for the first time, told the adventurers of unpaid calls, about 40,000.£., and a liability of 7000.£. or 8000.£.; but what the latter item is for no shareholder seems to know. The last account rendered by the purser has been shown to a gentleman who is purser to a large number of mines, but who cannot understand what the liability means, nor do the committee seem to think it worth while to vouchsafe information, or to give any idea of what amount will probably be required to clear off the debts of the mine. A shareholder has received a letter from the neighbourhood of the mine, in which the writer says—"I fear Alfred Consols will be a serious affair to wind-up, and, no doubt, the mine has been awfully imposed upon; besides which, owing to the run in the engine-shaft, they will lose 60 fathoms of pitwork; but, worst of all, the calls in arrear are most enormous, and many persons not to be found. I expect that those who can pay will have to do so for others. I think a committee should be appointed by the distant shareholders to have the accounts thoroughly gone into by some competent person." In the hope of obtaining for them that very desirable object, I am induced to ask your powerful aid, so that the heavy charges may be investigated, and the committee be made to render an account of their very unsatisfactory stewardship, and be made to pay their share of the debts.

From the list of shareholders in my hands, it appears that the majority are very distant from the mine. To this fact, added to the usual apathy of adventurers, must be attributed the present wretched state of the mine; for it is very evident that their interests have been quite overlooked. Such proceedings in mining have the effect of casting immense discredit and disfavour on the profession, and certainly deter many respectable, very wealthy, men from embarking in it.

G. HEWLETT.

LANIVET TIN MINES.

SIR.—I am pleased to see Mr. Thomas's remarks on the Lanivet Tin Mines, but if his views were carried out, it would prevent that benefit to the people in the neighbourhood, and to the mining public generally, which has already been the case; and also it would certainly prevent that rapid development of our rich tin district, which is being carried out with great energy and success. My plan is (in having to do with a new mine), to open up so many of the lodes as possible, and that, too, in different parts of the sett, then either take some to a neighbouring stamping, or have the ore assayed, and give the result to the world. In this way it gives people an opportunity of coming in with very little outlay of capital, and making a great deal of money. I shall never recommend any mine that I cannot think sufficiently highly of to have, and continue to have, a holding in myself, according to the capital which I can afford to lay out in it. His course would be to get the mines into the hands of a few very wealthy people, and if we could get shares at all, I fear it would be at very long prices. As I can find the lodes, and trace their course by what is termed the divining-rod, I can very easily, and with very little expense, especially where the lodes are so near the surface as in Wheal Esther, South Trebella, &c., put down pits, open the lodes, and try their value.

T. M. PASCOE.

NON-PAYMENT OF CALLS.

SIR.—The all-important question of non-payment of calls still attracts the attention of mining investments and speculation; beyond a doubt, this is quite true. The chief cause of this is that there exists a strong conviction that the present gambling speculations and transactions by unprincipled brokers and second-rate clients—often as weak in capital as in self-command—have made the mining market as awkward a field for the uninitiated as the worst sections of the horse-racing and betting community—in fact, by many it is considered rather worse. Of course, I do not mean to say there are not many highly respectable firms, who can be safely trusted, and who will candidly tell clients that they are themselves much at the mercy of the terrible state of things created by the unprincipled party. The non-payment of calls arises greatly from the results of the operations of those persons; but with regard to this point, I would take the liberty of quoting a passage from the letter of a "Cautious Man" in the Journal of August 22, which seems to me to embody in a few lines what it would take some people a column to explain:—"If calls were paid up in a punctual manner

Meetings of Public Companies.

LLANTWIT VARDRE COLLIERY COMPANY.

The first annual general meeting of proprietors was held at the company's office, Waterloo-place, Regent-street, on Wednesday, Lord HENRY GORDON in the chair.

Mr. J. HOPGOOD (managing director) read the advertisement convening the meeting, and a balance-sheet, made up to July 31, was presented, of which the following is an abstract:—

| | |
|--|-------------------------|
| Amount paid on 2365 shares | £7534 10 0 |
| Amount of 400 shares, fully paid-up, issued in part payment of purchase-money for Hendreycythan estate | 2000 0 0 |
| Amount of 16 debentures, interest in part payment of ditto, and interest thereon | 1648 0 0 = £11,182 10 0 |
| Preliminary expenses | £1500 0 0 |
| Cost of Hendreycythan estate | 7000 0 0 |
| Plant and machinery | 526 2 10 |
| Working expenses at colliery, management, rent of office, stationery, &c., interest on debentures, and incidental expenses | 882 17 0 |
| Law expenses | 170 0 0 |
| Amounts due | 104 11 11 = 11,183 11 9 |
| Cash at bankers | £ 998 18 3 |

CAPITAL ACCOUNT.

| | |
|--------------------------------------|-------------|
| Capital | £10,000 0 0 |
| Amount received on 2765 shares | £9534 10 0 |
| Amount remaining due on ditto | 4299 10 0 |

Amount of 1255 shares not subscribed for .. 6175 0 0 = £30,000 0 0

The report of the directors was then read, from which the following is condensed:—
Your directors, at this the first annual meeting of the shareholders, have to express their regret that the progress of the works at the colliery had not been so forward as they could have wished. Their belief in the ultimate success of the undertaking is, however, undiminished. The want of a proper engine to keep back the water was one great cause of delay; this has now been remedied, and the engine will go to work in the course of a week or so, when your directors hope to hear of successful efforts at winning the coal. They regret the dissension that had been caused by certain persons, which had created doubt and distrust amongst the shareholders, and greatly impeded the board in the execution of their duty, and rendered abortive steps which were being taken to increase the capital of the company by the disposal of the unallotted shares. They trust, however, that the shareholders in future will not suffer their property to be injured by unscrupulous attacks. The accounts have been fully tested, and found perfectly correct, by the auditor of the company. Your directors, pursuant to Act of Parliament, retire from office at this meeting, but offer themselves for re-election.

The CHAIRMAN moved that the report and balance-sheet be received and adopted.

The MANAGING DIRECTOR said it would, perhaps, save a great deal of time if he were at once to state that there were several gentlemen present who, although undoubtedly perfectly entitled to attend the meeting, yet had no legal right to vote, simply because they had not been shareholders for three months, and that there were others who had not paid their calls; they, also, were not entitled to vote. He then referred to the various items in the balance-sheet, and stated that the accounts had been examined by Mr. Holah, public accountant, who was present, and would be glad to answer any enquiry that shareholders might make.

Mr. MILES Sproxton stated that he had gone through the balance-sheet, and it appeared to him that the company was nearly 500/- in debt. —Mr. Hopgood was sorry to be compelled to interrupt Mr. Seton; but he could not allow the meeting to proceed under the impression that the company was 500/- in debt. He (Mr. Hopgood) was not aware that the company was in debt at all. It was true that there was owing upon the debenture bonds 1500/-; but there were arrears of call amounting to 1100/-, and they had 998/- in hand. —Mr. Sproxton then referred to the purchase-money and the preliminary expenses. —Mr. Hopgood said, so far as the purchase-money was concerned, it was in accordance with the amount stated in the prospectus, and, therefore, known to every shareholder before he became connected with the company; but he could not help saying that he did not think the amount in any way excessive. —Mr. Sproxton thought the royalty of 1s. per ton upon large and 6d. upon small was very high. —Mr. Lloyd stated that the average royalty in that district was 1s. per ton, and, therefore, the terms upon which the company would work the coal were far below the average.

Mr. Hopgood said, so far as the preliminary expenses were concerned, it was the amount that was by resolution agreed to be allowed, and with which he had nothing to do. He then read the minute in the directors' book which contained the resolution referred to, by which it appeared that the promoters undertook to defray all the expenses of advertising, brokers' charges and commission upon the sale of the first 2000 shares, registration, rents, expenses of secretary and manager, printing and the first three months' stationers' charges, share certificates, and the common seal, for the sum of 1500/-. All he (Mr. Hopgood) had to say was that he did not think 1500/- too large a sum for preliminary expenses.

Lieut.-Col. Wragge then moved, as an amendment, that the balance-sheet be not adopted, inasmuch as it is not in accordance with Article 80 of the Joint Stock Companies Act, 1862, which states that a statement of the income and expenditure, and the expenses of salaries, shall be shown. —Mr. GLEDHILL (the company's solicitor) stated that the balance-sheet, as presented, comprised the expenditure for salaries, and every other item was shown, which was as much as could be expected.

Mr. Holah (the auditor) stated that the 71st section of Table B cited what should be done when a company is in a working condition; but this company is not in that condition. The amendment required that the balance-sheet should show the income, when it must be known there was no income. In the present state of the company, the balance-sheet, as presented, was the only one that could be made out. —Lieut.-Col. Wragge: But a dividend is going to be paid. —Mr. Hopgood said it would be impossible to pay a dividend when nothing had been earned. What they were going to do was to pay the guaranteed interest.

Mr. GUERIN said that 325/- had been taken by the directors. —Mr. Hopgood said the directors had never received anything of the kind; all they had received was 200/- for a year's salary. —Mr. GUERIN: But it was received on March 25. —Mr. Hopgood said that the directors had received only 200/- per annum for their first year's remuneration, and that they would receive no more than 200/- per year until the shareholders had received dividends of 10 per cent. per annum out of profits.

After some further discussion, Mr. Sproxton seconded the amendment. —The question was then put, when there appeared, present and proxies, in favour of Col. Wragge's amendment 356 shares; against it, and in favour of the directors, 1207. The resolution was, consequently, put and carried. —It was then agreed that the business of the ordinary meeting should be adjourned till after the business of the special meeting was disposed of.

Mr. Sproxton then proposed the special resolution, of which he had given notice, to the effect that certain shareholders should be elected directors in lieu of those retiring, which was seconded by Mr. PAPPS. —The question was put, and immediately negatived.

Mr. Hopgood said, as it would be for the interest of the shareholders that all contentious feelings that had previously operated against the progress of the company should be among the by-gones, he was now prepared to invite Mr. Seton to a seat at the board. (Hear, hear.) —It was agreed that certain specific resolutions shall henceforth be the Articles of Association.

Mr. Hopgood explained that the special resolutions were precisely similar to those which had previously governed the company, with the exception that the directors would receive a reduced salary of 200/- per annum. —Some discussion arose as to the salary of the managing director, who eventually agreed to accept a reduced salary of 400/- per annum.

The business of the ordinary meeting having been resumed, it was unanimously resolved, upon the proposition of Mr. D. LLOYD, seconded by Mr. FLESHNER, that the retiring directors, Lord Henry Gordon, Mr. Joseph Hopgood, Mr. James Broadhurst, Mr. A. P. Clayton, and Dr. Chepman, be re-elected directors of this company, and the meeting testifies to their earnest and straightforward conduct during their past official career; and that the thanks of the shareholders are due, and are hereby tendered to their managing director, Mr. Joseph Hopgood, for the energy and ability with which he has conducted the affairs of the company; and, upon the proposition of Mr. LLOYD, seconded by Mr. Horrood, it was unanimously agreed that Mr. Miles Seton should be appointed to a seat at the board.

Messrs. Holah and Roberts were appointed auditors for the ensuing year. A vote of thanks to the Chairman terminated the proceedings.

CLIFFORD AMALGAMATED MINING COMPANY.

A meeting of shareholders was held at the mine, on Aug. 19, when the accounts for May and June showed a profit of 1900/- 5s. 9d. A dividend of 12s. 6d. per share was declared, and 2754 1s. 1d. carried to credit.

The following report was read:—

Aug. 19.—Wheat Clifford, Eastern District: The 212 is driven 15 fathoms east of the engine-shaft; lode in the end 7 ft. wide, worth 12 tons of ore per fm. We are now got into the western end of the course of ore mentioned in my last report: 15 fms. east of the shaft there is a winze sinking in the bottom of the 200 in a fine course of ore, worth from 10 to 12 tons per fm. The 212 fm. level end men are rising against the winze in equally as fine a course of ore. We expect to communicate here in a fortnight, which will bring down a fine current of air to the bottom, when we shall again commence to sink our engine-shaft for deeper levels. The 200 is driven 6 fathoms east of the shaft, in a fine course of ore for upwards of 50 fms. in length; for the last 3 fms. the lode has been small, but it is now opening again, and is worth 3 tons of ore per fm. The stops working in back of the 200 and bottom of the 190, east of the shaft, are worth 9 tons of ore per fm. each. The 212 is driven about 6 fms. west of the shaft; lode 4 ft. wide, producing stones of ore. We are not in far enough to meet with the ore in the level over, and the ground has been troublesome for driving. The lode in the 200, west of shaft, is 8 ft. wide, worth 12 tons of ore per fathom. There are three stops working in bottom of the 190, before this end, which will average 18 tons of ore per fm. each. The 220, driving east from the United Mines boundary, is 8 ft. wide, worth 12 tons of ore per fathom, and there are five stops working in back of this level and bottom of the 208, averaging 13 tons of ore per fathom each; and there are two stops working in bottom of the 220, east of the boundary of United Mines, worth 8 tons per fm. each. The 190, driving east on the south lode, is worth 2 tons of ore per fm. The ground at Frederick's shaft is favourable for sinking. The shaft from the surface is now near 70 fms. below the deep adit level, and the cross-cuts are all in except the 160; here there are 3 fms. further to drive so as to get in to rise and sink. The rise against the shaft above the 160 is up 26 fms., and the shaft sunk under the 120 about the same distance. We are now rising above the 190; rise up 6 fms. In this part of the mines we are in a good state of working, and the prospects are very good. —United Mines District: Since our last account we have made a very good discovery in the deep part of the mine. The 220, driving west from Taylor's shaft, on the north lode, is worth 8 tons of very good ore per fm. This level is going back in a high piece of ground, and from every appearance will make a great quantity of ore. We have commenced to open ground over it in the 208, and also to drive the 230 west towards it. There is a lode in this end 2 1/2 ft. wide, producing stones of ore: this lode is a great distance behind the 220. The 155, driving west from Hockings' shaft, is producing stones of ore and tin. The 140, driving east from Sampson's shaft, on Cupboard lode, is producing stones of ore and tin. —Buzz's Shaft: The 30, driving east on the Maliceable lode, is producing 4 tons of ore per fm.; the 30, driving west on the north lode, 3 tons, and the 30, driving east, 6 tons per fm. The western winze sinking on this lode, in the bottom of the 30, is down 9 fms.; the first 7 fms. sinking produced 10 tons of ore per fm.; the bottom of the winze is now worth 7 tons per fm., and there is another winze commenced east, under where the new shaft will come down, worth 7 tons per fm. The 18,

driving east on the north part of the lode, is worth 3 tons of ore per fm., and a rise in the back is producing about the same quantity. The 18, driving east on a south branch, is producing 3 tons of good ore per fm. The 18 west is producing stones of ore. There is also a winze sinking on this lode down 6 fms. under the 18; first 3 fms. sinking lode worth 3 tons of ore per fm. The lode in the winze afterwards went small, but it is now getting better, worth 1 ton of ore per fm. Taking the United Mines generally, the prospects for the last two months are very much improved. The course of ore out in the 220, driving west from Taylor's, to every appearance is a very great discovery, having a vast deal of high ground to the westward, which, I think, will be found to produce large quantities of ore. —Poldory District: Here our prospects are a little better. By sinking a winze under the 18, on Tiddy's lode, we have discovered a lode worth for ore and tin 20/- per fm. We are also cross-cutting north from Tiddy's shaft, the 18 and 26, to discover the productive lodes met with at Buzz's. The 40, driving east from Little Richards' shaft, is worth 1 ton of ore per fm. The 40, driving west, is producing stones of ore. The 50 and 36 are driving west from Wheal Moor shaft on Wheal Moor lode, but we have not met with anything to notice in these levels. —Conisold District: The lode in the 130, driving west from the boundary shaft, is 2 1/2 ft. wide, producing stones of ore. The lode in the 120 is small and unproductive. There is also a winze sinking from the 120 to the 130, which we hope to communicate by the end of next week. The 30 from the surface, driving west on the tin lode, is opening ground that will work on tin. The adit cross-cut is driven 12 fms. north from the shaft, but thus far no lode cut to notice. At Lyde's shaft the 60, driving east on Bawden's north lode, is worth 1 ton of ore per fm., and the winze sinking below it is opening tribute ground. On Bawden's south lode the 50 and 60, driving west, are unproductive at present. The pitches working are producing about their usual quantities of ore. Taking this extensive concern generally, the prospects are better now than at the last account. The course of ore discovered in the 220, west from Taylor's, will very much increase the returns in this part of the mines. The ore will make a produce of 12. —JOHN RICHARDS.

ST. DAVID'S GOLD MINING COMPANY.

The first annual meeting of proprietors was held at the London Tavern, on Monday, Capt. MAUDS in the chair.

The notice convening the meeting having been read, a balance-sheet, from the formation of the company (Sept. 12, 1862) to June 30, 1863, as audited by Messrs. Cooper Brothers and Co., public accountants, was presented, from which the following is condensed:—

| | |
|---|-------------------------|
| Dr.—30,280 shares, issued at 27. 10s. each, | |
| 11. paid | £30,280 0 0 |
| Accounts due by the company | 227 5 5 = £30,507 5 5 |
| Cr.—Purchase of the mine | £25,000 0 0 |
| Sundry expenditure | 3,212 4 9 |
| Cash at bankers | 712 10 8 |
| Due to the company | 1,582 10 0 = 30,507 5 5 |
| Available balance, 22957. 0s. 8d. | |

The report of the directors stated that they had great pleasure in announcing that, in addition to the St. David's Mine, they had purchased the right to wash and search for gold in the alluvial deposits on the banks of the River Mawddach, from Pen-maen pool to the estuary at Barmouth. Although they have, and always have had, every reason to believe that the mine is one of the best, if not the best, in Wales, and that time and machinery were the only things requisite to make it a highly remunerative property, yet the directors felt that the opportunity offered to them of obtaining the river washings on advantageous terms was one which they had no right to lose, as the returns were likely to be more immediate and very large. Since the purchase was effected much has been done in the way of prospecting and testing the value of the newly-acquired property, and the directors believe the shareholders will be perfectly satisfied with the results when the necessary machinery has been fully prepared and set to work—a matter of a few weeks only from this time. The Elizabeth lode is most promising in appearance, and will, there is every reason to believe, when reached at greater depth by the level now in progress, prove to be one of the richest gold lodes in Wales. Other lodes on the property are likely to prove remunerative; but it has been thought advisable to give the above-named lode the preference. The directors have carefully abstained from laying out large sums of money on untried machinery, and have deemed it advisable to wait as long as possible, in order to be guided to a certain extent by the experience of other mines in the neighbourhood.

Mr. Sproxton said that they had great pleasure in announcing that the mine is one of the best, if not the best, in Wales, and that time and machinery were the only things requisite to make it a highly remunerative property, yet the directors felt that the opportunity offered to them of obtaining the river washings on advantageous terms was one which they had no right to lose, as the returns were likely to be more immediate and very large. Since the purchase was effected much has been done in the way of prospecting and testing the value of the newly-acquired property, and the directors believe the shareholders will be perfectly satisfied with the results when the necessary machinery has been fully prepared and set to work—a matter of a few weeks only from this time. The Elizabeth lode is most promising in appearance, and will, there is every reason to believe, when reached at greater depth by the level now in progress, prove to be one of the richest gold lodes in Wales. Other lodes on the property are likely to prove remunerative; but it has been thought advisable to give the above-named lode the preference. The directors have carefully abstained from laying out large sums of money on untried machinery, and have deemed it

advisable to wait as long as possible in order to be guided to a certain extent by the experience of other mines in the neighbourhood—they think, however, it will shortly be expedient to erect some; but Capt. Faull's report states "that whenever the quartz shall have been practically and thoroughly tested with efficient machinery, the adventurers will be agreeably surprised when they hear of the results."

Mr. Sproxton said, he believed they would, and very shortly. No one had such an interest in the success of the undertaking as (Mr. Sproxton) had, nor had anyone taken upon himself such a degree of risk, and, for these reasons, he should have most strenuously objected to the incurring an outlay of between 25,000/- and 35,000/- for machinery as had been the case upon a neighbouring property—without having obtained any result. Their policy had hitherto been to wait, and see what was being done at other properties, and take advantage of the results. (Hear, hear.)

Mr. EDWARDS: If the stuff had been found, why not erect suitable machinery?

Mr. Sproxton: That is just the difficulty to know what is suitable machinery; but still they have now known which was the most suitable machinery. By this course, they had been saved from the expense and annoyance of having adopted speculative inventions, productive of results anything but satisfactory. He mentioned that some ore had been taken from the Elizabeth lode, which was sent to the assayers for the Bank of England, by whom it was proved to contain 47 ozs. of gold to the ton. All he could say was, if they did not know how to get the gold out, it was not his fault.

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Mr. Sproxton: That is just the difficulty to know what is suitable machinery;

another mine, where the men were kept underground sixteen hours. — The SECRETARY said the manager was in no way interfered with, the committee confounding their attention exclusively to the finances.

Upon the proposition of Mr. McCALLAN, seconded by Mr. HOWLANDS, the report was received and adopted, and the accounts passed and allowed.

Mr. LIVETT had much pleasure in proposing the re-election of the committee of management. Having the most implicit confidence in that committee, it was with great pleasure he moved that proposition, which having been seconded by Mr. McCALLAN, was put and carried unanimously. — The CHAIRMAN, having appropriately acknowledged the vote, carried his fellow-shareholders that no effort on the part of the committee should be spared to bring about that satisfactory and long-desired result—a permanent return to the shareholders for their outlay.

A vote of thanks to the Chairman was passed, which concluded the proceedings.

BOSCAWEN MINING COMPANY.

The first general meeting of the shareholders in this mine since it has been a distinct adventure was held at the company's offices, Austinfriars, on Thursday.

Mr. J. FIELDING in the chair.

Mr. E. KING (the secretary) read the notice convening the meeting. A statement of accounts for the four months, ending with costs for June, was submitted, from which the following is condensed:—

| | |
|---|---------------------|
| March mine cost, merchants' bills, &c. | £ 460 18 3 |
| April ditto. | 428 3 6 |
| May ditto. | 509 1 3 |
| June ditto. | 478 3 8 = £1931 6 8 |
| Sale of copper ore. | 305 7 5 |

Leaving debit balance. £1627 19 3

The report of the agents was read, as follows:—

Sept. 2.—Hunter's shaft is now sunk 10 fms. 5 ft. below the 70 fm. level; we intend to make it 11 fathoms, which will be completed in the course of the present week; we shall then commence driving the 80 fm. level east and west of said shaft; the lode in the bottom of this shaft is looking more promising at present than for the whole sinking, it being 1 ft. wide, yielding 1 ton of copper ore per fathom, worth 6d. The 70 fm. level is extended west of the above shaft 28 fms.; the lode in this level is about 9 in. wide, yielding a little copper ore, but not of much value; we expect an improvement in this driving very shortly, as it is now within 3 fms. of No. 1 winze, sunk 3 fms. below the 60 fm. level, but now suspended, in consequence of water; where the lode is 2½ feet wide, worth 30 per fathom. The 70 fathom level is now extended west of Kitse's shaft 19 fms.; the lode in this end is 18 inches wide, producing a little ore, but not to value. The 60 fm. level is extended west of Hunter's shaft 115 fms.; the lode in this level is at present small and unproductive; here we also expect an improvement, being within 3 fms. of the 60, and east of No. 2 winze, where the lode is 20 inches wide, worth 20s. per fathom; as soon as this ground is fairly laid open, it will enable us to take away the backs, both east and west, of the latter winze at a low tribute. In the 80 fm. level we are extending a cross-cut south from the main lode towards the caunter, and expect to meet with it in about 3 fms. more driving, from its underlie in caunter shaft, sunk to the deep adit, where the caunter lode is 5 feet wide, composed of pyrrhotite, manganite, and copper ore, of a very promising appearance. We have this day broken some spindles of stones of copper ore, of high percentage. Now, looking at this kindly lode at the adit level, we are led to hope that it will, when intersected at the 30, prove a productive lode. We have already intersected a branch 8 inches wide, underlying south, dipping towards the lode 4 ft. In a fathom, yielding good stones of copper, which we consider a good indication. We are now cutting a plait at the caunter shaft, at the adit level, and when this is completed we shall at once commence to sink the shaft on the course of the lode. — Sampson's Lode: The 30 fm. level is extended east of John's shaft 14 fms.; the lode in this driving is about 16 inches wide, with spots of copper ore, with a little better appearance, both in the strata and character of the lode. Now, taking the prospects of this as a whole, we consider them improved, and looking at the 70 fm. level, driving west of Hunter's shaft, which is within 3 fms. of No. 1 winze, sunk below the 60 fm. level, where the lode is worth 30s. per fathom, with a good bunch of ore for many fathoms in length to the west of the same. Taking this into consideration, we have a right to expect, from what we have seen, it will continue in depth, though it may have taken a slight dip to the west, and should this be the case we shall, as a matter of course, have a few more fathoms to drive to get into the run of ore ground. This will be proved to the satisfaction of everyone in the coming four months, and should we be so fortunate as to meet the bunch of ore in the 70, which we see no reason to doubt, it will, with our other productive ground, bring us into a paying position, and in course of time pay the adventures for their outlay. We may add we have still every confidence in the speculators.

Mr. LIVETT expressed himself perfectly satisfied with the manner in which the company's affairs were being conducted, as well as with the general prospects which the property presented.

A SHAREHOLDER, in referring to the different points of operation, stated that a course of ore had been passed through in the 60 for upwards of 50 fms. in length. The bottom had been unwatered, and the agents had valued it for the whole length at from 20s. to 50s. per fm.; and in the winze, which had been sunk 3 fms., the lode had averaged 30s. per fm. Had they been able to continue the sinking of this winze, and another further west, the returns would have been equal to about the costs, provided the 70 had intersected this run of ore. But it was quite evident that this run of ore was fast dipping west, and that the 70 end, in the course of 2 or 3 fms., must intersect it. That end would soon be under the winze, and no doubt the agents would put up a rise, so as to form a communication, and to lay open the whole course of ore gone down in the bottom of the 60 fm. level. From the easy nature of the ground, and the richness of the lode, the ore would, no doubt, come away at 2s. 6d. in 11.

The SECRETARY said that a feature of considerable importance was the new shoot of ore at the bottom of Hunter's shaft, the shaft being now down within a fathom of the 81. Should this lode continue, it would prove that the run of ore in the 60 was lengthening eastward. If so, by pushing on those points there must be laid open in a short time a valuable run of ore ground, which would produce profitable results. — The CHAIRMAN referred to the fact that the water charges were exceedingly light. — Mr. McCALLAN mentioned the prospects of the mine were certainly as encouraging as those at Great Busy. — The CHAIRMAN said the statement just submitted was a fair debtor and creditor account, each month's materials and costs being placed against each month's returns.

Mr. SUGDEN was of opinion that the debt to Great Busy should be paid, and he thought it a subject worthy of consideration that some capital should be fixed as having been paid upon Boscawen shares, for it would be perfectly ridiculous to see a mine paying costs to be marked in the *Mining Journal* as 5s. paid, when there had been expended upon the property something like 10,000s. — The SECRETARY said at present Great Busy shares stood at 15s. 6d. paid, but of that a large amount had been expended upon Boscawen. — Mr. SUGDEN said, as they were now two distinct mines out of doors, they would, of course, be considered as in no way connected, and for that reason he thought it would be desirable that some amount of capital should be fixed as having been paid upon the shares.

The report was received and adopted, and the accounts passed and allowed.

The CHAIRMAN said the committee recommended that a call of 5s. per share should be made. He mentioned that the costs of the four months' working had been provided by Great Wheal Busy. — Mr. SUGDEN said it would have been necessary to have made the call now proposed at the time the sets were divided, had not the amount been paid by the Busy proprietor. — The SECRETARY said he would obtain from the agents the valuation of the materials at present at Boscawen, so as to determine an approximate amount of capital at which the share might stand.

A call of 5s. per share was made, and the committee of management were re-elected.

A vote of thanks to the Chairman terminated the proceedings.

ERWFELIN LEAD MINING COMPANY.

A general meeting of shareholders was held on Aug. 26, at the office of the company, 61, Seel-street, Liverpool.—Mr. T. HUGHES in the chair.

The accounts for four months, ending July 28, showing a balance in favour of the mine of 17. 5s. 4d., having been passed, the following report from the agent of the mine was read:—

Aug. 22.—Since the commencement of operations by the present company, in April last, we have cleared out the adit level, or cross-cut, of all falls, debris, &c., to the end, in length 50 fathoms, and have also re-opened the fall in the engine-shaft 11 fathoms, and sunk 5½ fathoms below the adit level; this piece of work is entirely completed to the said depth, and by all appearance we shall reach the bottom of the mine in the course of a few days. We are now in a position to verify what was hitherto alluded to and suggested in former reports—that is, that the said engine-shaft was sunk on the north lode, and that all previous operations and workings had been almost entirely confined to exploring this vein alone; and we have presently more proof of its bearing character, as at this depth, as well as above adit, the entire vein is wholly worked out to a depth, and, no doubt, it will remunerate the ancients for their labour in doing such an amount of work. We have also directed a winze upon the south lode, which is at present 2½ fms. deep below adit; the ground at present is rather hard, but the appearance of the vein is good, and it is strongly mixed up of stones of pyrrhotite, manganite, and carbonate of lime. This winze, besides being an excellent trial of the said lode, will be a necessary and effectual piece of work for ventilating the bottom workings. On surface we put the water-wheel and connecting-rods, bobs, &c., in good and permanent repair, and in the course of a few days hence the mine will be in first-rate working order, and our monthly costs will be considerably lessened, and future operations will almost entirely be confined to deeper explorations. The wheel was started to work this afternoon, and am glad to say that it did its work exceedingly well, and nothing could be possibly set to move steeper, more noiselessly, and firmer.—J. WILLIAMS.

The CHAIRMAN said he had great pleasure in meeting the shareholders under such favourable circumstances as the reports represented; he could bear out the statements of Capts. Williams and Lloyd as regards the wheel, &c. It is a first-rate job, and estimated fully equal to an 80-horse steam-engine, and when we consider that we have that power, with plenty of water, at a nominal rent of 1s. per ton for every ton of lead we sell, I think we have good reason to be glad of our bargain. There is another thing we must bear in mind—that the wheel is 24 ft. diameter and 8 ft. breast, with plenty of water summer as well as winter, and decidedly more power than we require at present, and that we have that power without the expense of attending steam-machinery—a decided advantage, and will prove a great source of economy in working the mine. You will perceive by the balance-sheet that every item is charged up, even the cost-sheet due on Aug. 28; and now as the work has been done, such as new bobs, rods, with iron work, launders, &c., and done in such a way that they will last for years, and since our expense as regards this work is now at an end, we may begin to look forward to profits, which I believe are near at hand. I may remark that the proceeds of the first call of 10s., per share have cleared us so far, and that there are 452 shares out of the 2000 unallotted, or else our balance in favour of the mine would be 230l. I am of opinion that the best thing the company can do is to take up the remaining shares pro rata, at 2s. 6d. premium. I do not think that any gentleman will object to pay the 12s. 6d., as the shares are now selling in the neighbourhood of the mine at 25s. to 30s. per share.

Mr. BRETT said he could not see why they should pay 2s. 6d. premium, and begged to propose that the remaining shares be allotted to the company pro rata at 10s. per share, which was carried unanimously, and 200 of them were taken up by shareholders present.

Mr. MORTON asked Capt. Williams if the wheel was equal to the work required?

Capt. WILLIAMS, in reply, stated that the wheel was twenty times the power required just now, and was satisfied that it would be sufficient to work the mine to a great depth, and as for the work done, it will last for years without any further expense, as he had taken great care to have it done well. In reply to Mr. Cochrane, he said there were good stones of lead in the winze sinking below the adit, and that he had no doubt now as the machinery is at work, and the mine clear of water, of having a good sampling of ore within six months.

In reply to Mr. Lewis, Capt. LLOYD (of Bryn Gwic) said he quite agreed with Capt. Williams' report, and felt satisfied that within a few months the mine would show for itself, to the satisfaction of the shareholders.

Meers, Hughes, Brett, Creely, Lewis, Inman, McMillen, and Cochran were appointed

directors for the ensuing year; and the sum of 30 guineas annually to be paid for their services, to receive their portions according to attendance.

Mr. T. HUGHES was appointed managing director, at 4 guineas per month, to include the duties of secretary; and 10s. per annum to be paid for furnished offices.

Capt. John Lloyd was appointed local managing agent, at 2 guineas per month; and Mr. Eddes, accountant, was appointed auditor, at 2 guineas per annum.

A vote of thanks to the Chairman terminated the proceedings.

SANTA BARBARA GOLD MINING COMPANY.

The second ordinary meeting of shareholders was held on Monday, at Liverpool, and was numerously attended.

Mr. CARNE (the Chairman of the directors) presiding.

The directors report was published in last week's *Journal*.

The CHAIRMAN, in moving the adoption of the report, said that he had had a long interview with Mr. Liddell, who was out for some years in the employment of the Morro Velho Company, and who, some months ago, visited the Pari Mine. Mr. Liddell had not known Capt. Bryant before, but he expressed himself much pleased with the management; and although he did not think the mine would prove so very brilliant an affair as was first anticipated, he (Mr. Liddell) believed it would yield 20,000t. to 30,000t. a year profit, but they must have patience. Mr. Liddell, who they all knew was a practical man, had backed his opinion of the future success of the mine by being a

shareholder, who knew the mine well, having some years ago been employed in working the Morro Velho Mine, also spoke most cheerfully of the probabilities of the Pari Mine's success. The produce of that mine was then superior to that of the Morro Velho. — Mr. PETERS remarked that the quantity of stone crushed fell far short of the amount anticipated, which was stated in the prospectus to be from 6000 to 8000 tons.

The CHAIRMAN replied that had the lode in the Pari Mine continued 15 ft., and the mine could have been kept open, a much greater result would have been obtained, but instead of that the lode had contracted to 6 ft., and was now expanded only to 10 ft., which was a great difference, and almost every level was found to be choked up, and had to be opened, and the dead refuse removed and most of the timber renewed before working could be commenced. Of course, great expense as well as delay were thereby occasioned. He hoped the mine will soon be opened fairly, so that they might get to different parts to work, but they must have the mine wider, and greater produce, before they could hope to make any returns. He thought, however, that they need not despair, but that, on the contrary, if they exercised economy and patience, the results would be highly beneficial to the company.

Mr. RICHARDS thought that 5000t. spent now in bringing water nearer to the works, and also providing stamping machinery near to the works, would produce in the end good interest. — The CHAIRMAN said that matter had already engaged the attention of the directors, who were, however, anxious, before going further, to show that they had good grounds for believing the mine would prove advantageous. The cost of what Mr. Richards had suggested had been estimated at 5000t., and as soon as possible the suggestion, which had before been recommended by Mr. Liddell, would be carried out. The success of the mines must, of course, depend upon the produce.

After some further discussion, the adoption of the reports and accounts was agreed to, and thanks having been voted to the Chairman, the meeting terminated.

TRUTH'S ECHOES, OR SAYINGS AND DOINGS IN MINING.

The Mining Share Market has been more actively engaged this week, and an improved and better tone imparted, which probably is the more obvious from the long dullness which has prevailed. Several improvements in mines have been reported from the different localities, creating enquiries, and in many instances, resulting in higher quotations. The depressed state of the market for some time past, and the consequent decline in prices of most stocks, have, as anticipated, brought *horseshoe* purchases forward, who will soon realise the advantages of buying in a declining market.

WHEAL SETON and WEST SETON have been less active, and offered at lower rates.—WHEAL BASSET and EAST BASSET have been enquired for, and done at improved rates.

—WHEAL BULLERS have been bought for at buyers' prices.—CLIFFORDS have been freely dealt in; prices have fluctuated, but left off firm.—NANGILLES have shared largely in the transactions of the week; prices have varied, but left off firm.

—TINCROFTS have changed hands at quoted prices.—STRAY PARK and SOUTH TOLGOY have been enquired for without any improvement in price.—SOUTH TOLGOY have declined.—WEST CHIVERTON and WHEAL CHIVERTON are in request at fair market quotations.—GREAT SOUTH TOLGOY have been bought at nominal prices.—EAST GREENVILLE and WHEAL GREENVILLE have changed hands, but prices have fluctuated.—NORTH ROSEHAMS have been roused into more activity, in consequence of reported improvements in the mine, and prices have advanced.—NORTH DOWNS, NORTH CROFTY, and NORTH TRESCREBURY have been each bought for at buyers' prices.—NORTH BASSET and NORTH DOOLCROFT have been dealt in at nominal rates.—WHEAL KITTS (St. Agnes) are in fair request at higher prices.—HARRIETTS have been offered at lower figures.—EAST ROSEHAMS continue very quiet.—NORTH GRAMBLERS have been in request at nominal prices.—EAST WHEAL LEVELS are in good demand at improved rates, the recent improvements continuing to look well.—GREAT WHEAL FORTUNES have been in better request, and slightly advanced.—WENDON CONSOLS and SIXTHNEY and CARNMEAL continue heavy at lower rates.—BASSET and GRYLLS are in request at improved prices.—WHEAL GRYLLS have been enquired for, and apparently firm at quoted figures.

MARGARET, PROVIDENCE, and TREMAYNE find buyers at lower rates.—ROSEHAMS

UNITED, EAST PROVIDENCE, and MARGERY are saleable at fair market prices.—HOBWELL HILL and RAMSON UNITED, after a long quietude, are again in demand at nominal prices.—EAST CADARONS continue to share largely in the transactions of the week; prices have varied, but left off firm, with an upward tendency.—MARKE VALLEYS have slightly advanced, consequent on a reported improvement.—GLASGOW CADARONS have been more in demand at higher rates.—LUDCOTTs have been dealt in at present prices.—GONAMENAS are in good request, and prices have advanced.—HEROESFOOT, TRELLAWNY, and MARY ANN are rather quiet.—POLMARES have been in request, and done at quoted figures, the mine having improved.—DRAKE WALLS are enquired for at better prices.—WHEAL EDWARD and CREEBOR have changed hands at fair market prices.—EAST WHEAL RUSSELLS have been in demand at improved rates, in consequence of a reported improvement in the mine.—EAST CADARON—Caunter lode: The 50 east is worth 12s.; in the 60 east, in cross-cutting behind this end, the ground is very favourable; 70 east is worth 12s.; 70 west, from 10s. to 12s. per fm.—New lode: The 10 east is worth 12s.; 10 west, 12s.; 12s.; 15s.; 18s.; 20s. per fm.—South lode: The 60 east is worth 12s.; 60 west, 10s. per fm. According to this official report of the minimum value of the lode (exclusive of the 60 end east), the aggregate value appears to be 79s.; but publicity has been given to the *independent* inspectors of Wednesday, valuing the same at 44s. per fathom. Whatever the real difference may be, the motive for such a statement must be obvious to all; but it should be borne in mind that the former is the estimate of the agents, who are daily underground, and perfectly acquainted with the value of the ore, and have no other interest but in serving their employers with honesty and truth, whilst the latter are the paid representatives of a party interested only in the depreciation of the property. Notwithstanding the clamorous meeting of the members of the Mining Exchange, reported in last week's *Journal*, the following facts may be relied on with some regularity in this concern, apparently at the rate of about 6s. per annum. WEST CHIVERTON has again risen, the last price being 32s. to 33s. The 80 west, on William's lode, is worth 80s. per fm., and east 40s.; Elizabeth lode, in the 70 west, 30s.; lode at the shaft, sinking under the 80s., fully 30s. per fm. This mine is opening upon the best in Cornwall. CHIVERTONS are in great demand at 7s. The buying orders are chiefly from the country. For safety, and great chances of advance in the price of shares, there is not a better speculation in the market. TINCROFTS are firmer, at 20s., and have only few in number. PENTRE LYGAN, 200 shares; which number together 6200 shares, whilst the four Cornish concerns amount to 9024 shares, and the market value of the four latter mines is about 20,000s. What are their merits to entitle them to take a fair rank as either speculations or investments?—CEFN CILCEN: At Susan shaft, in the 80 fm. level, have cut a new lode of rich ore, which will, no doubt, prove lasting, it being near the junction with the Thistlefield lode, and previously yielding 2 tons of ore per fathom." A sample of the ore from this new lode has been forwarded, and may be inspected at No. 1, Finch-lane. It is pronounced by practical lead miners to be, as represented by the agent, a tolerably sure indication of a rich mine, and contains about 75 per cent. of lead, worth 12s. 10s. per ton. PANT-Y-PYDWE is represented as working so successfully as those enumerated, it being absolutely true that they receive little support from the market, for reasons at present undiscovered, but their turn is coming. The mines are—CENTRAL MINERA, in 2500 shares; CEFN CILCEN, 2500 shares; PANT-Y-PYDWE, 1000 shares; PENTRE LYGAN, 200 shares; which number together 6200 shares, whilst the four Cornish concerns amount to 9024 shares, and the market value of the four latter mines is about 20,000s. What are their merits to entitle them to take a fair rank as

RAILWAY PASSENGERS' ASSURANCE COMPANY.

On Thursday, the twenty-eighth half-yearly meeting of shareholders was held at the company's offices, Cornhill.

Mr. J. CLAY, M.P., in the chair.

Mr. J. VIAN (the secretary) read the notice convening the meeting.

The directors' report stated that during the half-year ended June 30, the premiums on general accident policies amounted to 28,742. 15s. 5d., and on railway accident tickets to 3913. 10s. 1d.—making the total premium income for the half-year 31,656. 5s. 6d., against 28,554. 6s. 6d. during the same period in 1862. The comparative number of policies and tickets issued during each half-year was as follows:—General accident policies—1862, 11,520; 1863, new policies, 27,131; renewals, 9,876;—total, 12,589. Policies for terms of years, or for life, by single payment, and by annual payments, on a decreasing scale—1862, 388; 1863, new policies, 20; renewals, 342;—total, 362. Single journey tickets—1862, 1st class, 23,694; 2d class, 43,681; 3d class, 67,710; 1863, 1st class, 22,432; 2d class, 42,774; 3d class, 72,583. Double journey tickets—1862, 1st class, 11,603; 2d class, 19,083; 3d class, 18,859; 1863, 1st class, 12,449; 2d class, 23,266; 3d class, 20,093. Periodical tickets—1862, 1080; 1863, 1059. While some descriptions of tickets showed a slight falling off, and the increase of policies had not been at quite so rapid a rate as hitherto, the aggregate amount showed a satisfactory increase, and that the business of the company still continues to progress. The cash received for premiums during the half-year was 23,311. 17s. 9d., and the interest on investments 4057. 9s. 10d.—making, with the balance from the previous half-year, 45,551. 2s. 2d., to the credit of the revenue account. The disbursements for compensation were 16,629. 7s. 3d.; for office expenses, salaries, &c., 5798. 18s. 8d., and for commission and Government money, 3824. 15s. 7d. After payment of interest to the proprietors, and 1000/- paid towards the replacement of capital, there is a balance of 17,935. 17s. 1d. to be carried forward. Adding to this the sum due from clearing-houses and agents, 3341. 7s. 9d., there was a total balance on revenue account of 21,280. 4s. 10d., from which interest at the rate of 4 per cent. per annum would be paid for the half-year. The amount paid as compensation during the half-year was for eight fatal cases, 5050/-; 870 claims for personal injury, 11,579. 0s. 3d.; total, 16,629. 7s. 3d.

The CHAIRMAN having moved the adoption of the report, stated that the company's business during the past half-year presented some very curious features, but the general result was satisfactory, inasmuch as it showed an increase of rather over 3000/- in the gross premium income of the company for the last six months, as compared with the corresponding period of 1862, and an increase of 1000/- premiums. Another satisfactory feature was, that the revenue in the past half-year was larger than that of any preceding half-year. Still there were some curiosities in the incidents of the business, the most remarkable being, that while the double-journey tickets showed an increase all round—first, second, and third class—there was a falling off in both first and second class single journey tickets, and an increase more than in proportion in the third. So long as the results were in the main satisfactory, it was scarcely worth while to enquire what the causes of this curious discrepancy were, but as the third class represented the working classes, those who took an interest in the intellectual development of those classes might regard the fact with some degree of satisfaction, as showing that in the matter of prudential forethought they were, according to the experience of this company, more advanced than those who ranked higher in the social scale. (Hear, hear.) It has always been a question how far the directors were justified in going to any large expense for advertising, and other means of making known the benefits the institution conferred, without being perfectly satisfied that the outlay would produce an adequate return; while, on the other hand, many had blamed them for not launching into a much heavier expenditure than they had done, for the purpose of extending the business of the company. The board, however, had always considered that the policy of prudence was the best; but now, finding the ground firmer under them, they had determined upon risking something more in the attempt to make the company better known, and thus to increase its business, and with that view, in addition to ordinary means employed, they intend opening a West-end office, from which he anticipated very advantageous results. Although they had been some years in operation, they were not so generally known as they ought to be. It was almost incredible how many people were either wholly ignorant of the company, or believed that its operations were restricted to insuring against railway accidents only. Unfortunately, the name of the company, which could not be changed without difficulty and expense, for it was settled by Act of Parliament, had in some measure led to this impression. Each year, however, tended to reduce this obstacle to their progress, and he looked forward with a sanguine hope to a very considerable extension of business are long. But he could not speak with so much satisfaction as he desired to do of the efforts of their agents throughout the country. They had nearly 3000 agents, most of them being the station masters and clerks at the different railway stations, but three-fourths of the business arising at those stations came through about 30 only of the agents. He knew the difficulty of impressing a new idea, and was not surprised that the agency was in many cases accepted with the feeling that it could do no harm, might do some good, but all events would entail but very little trouble. This, however, was a very mistaken feeling, seeing that the 30 agents from whom so large a proportion of the business came, added by it from 100/- to 150/- a year each, upon the average, to their incomes; and he believed that at every railway station throughout the kingdom the agents by pushing the business of this company might secure a handsome addition to their salaries. The business of the company, he was happy to say, was in a very satisfactory state of development, and it was difficult to put a limit to the prosperity at which it would no doubt arrive when the advantages it offered to the public were better understood and appreciated. The present market price of the shares by no means represented their intrinsic value.

Mr. MORRISON, (Deputy-Chairman) having seconded the proposition, it was put and carried unanimously.—Mr. BLACK proposed a vote of thanks to the Chairman and directors, which being duly seconded, was put and carried unanimously.—The CHAIRMAN having acknowledged the compliment, the proceedings terminated.

LOCOMOTIVE IMPROVEMENT.—The locomotive engine appears to have arrived, two or three years ago, at that point in its history where improvement ceased, at least, for a time. There is nothing remarkable in such a fact, which is common to every description of machinery. Any one who will take the trouble to compare Stephenson's "Rocket," now preserved in fair order at the South Kensington Patent Museum, with the engines of the "Planet" class, one or two of which have been treasured up by the North-Western Railway Company; and these, again, with the engines of the long-boiler variety, with outside cylinders and forked connecting-rods, many of which are still working—will see how great has been the march of improvement which has developed the magnificent machines exhibited last year, from such imperfect examples of engineering skill. It is not at all strange that we should rest content for a time with what has been accomplished within the last 30 years; but it would be very erroneous to conclude that this pause is likely to last, or that it arises because the locomotive holds out no inducement to the engineer to exert himself further in developing its powers, increasing its economy, or adding to its durability and efficiency. There is a certain point in the progress of every machine when it performs its duties so well, that any attempt at further improvement holds out little prospect of pecuniary reward; inventors pass it by, turning their attention to something which more obviously requires the exertion of their peculiar talent. The locomotive is pre-eminently a machine of this class, being really so far perfected that nothing but the refinement of mechanical skill can add to its merits. The reward for such improvements may not be great to the inventor, but they cannot fail to be to railway companies; and although there is no great field for outsiders, there is for locomotive superintendents and others, who have it in their power to introduce those little matters of detail, which, seemingly trifling, really conduce in a superlative degree to the efficiency of the machine. The introduction of good coal as a substitute for coke has become almost universal on all the railroads in Great Britain, the saving effected being very considerable, amounting to many thousands per annum on such lines as the North-Western. All things considered, the production of smoke from coal-burning engines is not very great, and with a little more care might possibly be reduced to half what it is at present. Even now, however, it can scarcely be considered a nuisance, except by the fastidious. With a roomy fire-box, and a free admission of air above the fire, almost any coal can be burned without smoke. It is not easy to secure these conditions, however, in the locomotive. The furnace doors are too small to supply all the air required, if perforated ever so closely on Wye Williams's principle; and their fire-boxes are too confined to permit flame to exist in them as freely as it ought. Theoretically the gases should remain in the box till consumed, a condition impossible to secure completely. The scoop deflector has been introduced as a substitute for the perforated fire-door, and the brick fire-bridge, to detain the gases and aid their combustion. These, combined with a long grate and a deep fire-box, give better practical results than can be derived from the use of the combustion chamber, which is rapidly going out of favour. The employment of this expedient—to designate it by its proper name—entails a shortening of the tubes, which is fatal to economy, and materially hastens the destruction of the smoke-box and stack. An increase in their number and reduction in their size, as practised at one time on the East Lancashire line, where 427 tubes of 1 1/4 in. diameter were crowded into a shell of but 3 ft. 8 1/2 in. outside diameter, has given anything but good results, either in the economy of fuel or durability of the boiler. Mr. Williams and many others have endeavoured, ere now, to prove that length of tube was superfluous, inasmuch as experiments showed that evaporation was almost wholly confined to that portion of the tube surface next to the fire-box. Most of these experiments were made with model boilers, employing gas jets to produce the necessary heat. The results obtained were fallacious. We have every reason to believe that a locomotive boiler with 2-in. tubes evaporates a very considerable quantity of water close to the smoke-box when travelling at a high speed. It is taken for granted that flame will not enter a 2-in. tube for any considerable distance; this is perfectly true with a moderate draught. When the fire is urged, however, by the powerful action of the blast-pipe at high speed, such tubes become filled with flame from one end to the other if not more than 8 or 9 ft. long. Any engineer can determine the fact for himself by drilling a few sight holes in the smoke-box door. It is well known that by exposing a Day lamp to a strong current of air, flame will be forced through the wire gauze, and accidents have ensued ere now from this cause. Flame will not enter small tubes, from precisely the same reason that it will not pass the gauze meshes of the lamp; but the opposing force can be overcome without difficulty, and nothing is easier than to compel flame to enter and traverse tubes of moderate diameter. How much smoke may be consumed within the tubes of a locomotive boiler, is a subject worthy of careful enquiry. Large and long tubes may, after all, be quite competent, when aided by a roomy fire-box, to supply all the space necessary for tolerably perfect combustion, without entailing any of the difficulties which beset the combustion chamber, and, as experience proves, without any risk of wasting fuel; for more heat is lost in permitting the escape of unconsumed gases through small tubes than can possibly follow from the use of large tubes, which, although they offer less heating surface, yet render that surface more valuable by permitting the existence of flame within them. Though locomotives consume the products of combustion moderately well, we have no reason to conclude that their efficiency, or the economy of fuel burned, is as yet anything like what it should be. The average evaporative duty of the locomotive boiler does not much exceed 8 lbs. of water converted into steam for each pound of coal put into the fire-box. Lord Duncannon succeeded years ago in evaporating nearly 13 lbs. of water for each pound of coal consumed, in a marine boiler not of the best type—a result generally attributed to slow combustion. Experiments conducted in France, however, fail to confirm such a conclusion, as the employment of a forced draught, with quick combustion, was proved beyond dispute to add equally to the efficiency and economy of a boiler properly constructed, though not specially intended for the employment of the principle. The straight sides of the locomotive fire-box—or, worse still, those which are wider at the top than at the grate—are extremely unsuitable for communicating heat to the water surrounding them. A vertical surface is certainly not more than half as efficient as the plate, and preventing that absolute contact of the water with it which is essential to the rapid production of steam. Mr. Sinclair, of Glasgow, constructed the fire-boxes of some of his small locomotives with inclined sides with the greatest advantage, and the principle deserves general adoption. It reduces the size of the tube-plate, how-

ever, so much, that in order to carry it out as it should be, grates must be made much wider than they now are—a difficult job on the narrow gauge, from the position of the trailing and driving-wheels. Anthracite coal-burning engines have been successfully constructed in America with grates 7 feet wide across the track, and as much as 6 feet long. Were such enormous grates adopted here, it might be found advantageous to cover them round the sides with fire-bricks, which would protect the plates, and conduct materially to the regular production of steam. A thinner fire, too, might be maintained on the grate with manifest advantage, so far as prevention of smoke is concerned. The feed-pump is rapidly being displaced by the injector. On the North-Western it is only retained on a few old-fashioned engines, as much, perhaps, for the purpose of comparison as from any other reason. A feed-pump, filled with air-vessels and all the requirements necessary to hydraulic machinery, driven at a high speed, is really rather complicated piece of machinery, easily put out of order, and exposed to risk from frost, &c. We understand that on the Great Eastern line, where the application of the injector is all but universal, a very considerable saving is effected in the item of feed-pipes alone. Not one has ever burst when the injector is employed, while with feed-pumps of the best construction they were continually being ruptured, either by the irregular action of the pump, or by frost. The engines, too, are found to keep their steam better when running, if the boiler is fed by the injector, than when supplied by a pump. There is little doubt that the expenditure of steam is far greater with the former for equal quantities of water fed in than with the latter; but this really is a matter of very little consequence when we consider the advantages held out by the injector. The simplicity of its arrangements, the ease with which it can be fitted, and, we add, the certainty of its action under all the varying circumstances to which a locomotive is exposed, render its application one of the most important improvements the locomotive has received of late years.—*Mechanics' Magazine*.

FOREIGN MINES.

EAST KONGSBERG.—D. T. Macdonald, Aug. 14: South Sunds: In the forepart of the vein is split into two branches; we have about 1 1/2 fathoms to drive before we come into the proper faibards.—South Ramsrud: In the gisling the vein is giving scheiders in small quantities daily. The stuff raised from the rotten vein, sinking upon surface, continues to give silver. Hitherto we have been adding this stuff to our main pile, but now we find it is worth preserving as scheiders.—North Ramsrud: In the level driving west the vein is 8 in. wide; when we began driving it was only 1/4 in. wide, and this caused us to doubt that it was the large vein seen in the adit; we are now satisfied on this point. Since last writing you, I have received from the directors of the Bank of Norway \$310,824, being the price of the bar of silver which we sold to them.

ENGLISH AND CANADIAN.—H. Williams: Kent's Shaft: We stopped on Fanno Eliza, No. 2, 9 fms. 1 ft., and obtained 4 tons of 40 per cent. ore when dressed. There is a moderate size lode along the bottom of the winze, and we have re-set the same to seven men, at \$30 per fathom. In Williams's winze we have sunk 1 fm. 6 in. the ground being very hard, and poor for copper; it is now improving, and is re-set to six men, at \$30 per fathom. Sayle's shaft is sunk 3 fms. 3 ft., and we met with some pretty samples of grey and purple sulphurites of copper.—Dressing: We have sampled a pile of stamp ore, estimated at 24 tons, and shall have another pile ready in a week, estimated at 20 tons. Water has been scarce all through the month.

SANTA BARBARA.—By advice dated Parl., July 28, Capt. Bryant informs the board that in the mine the lode is increasing in width, at the same time presenting a very favourable appearance. He also states that by the outgoing mail he was unable to give them the result of the amalgamation process, not considering that a sufficient quantity of sand had been passed to make it worth while to extract the amalgam.

PONTIGUAUC.—Captain Rickard, Aug. 15: Roura: The 80, north of Richard's shaft, is improved in appearance; lode 4 ft. wide, yielding 1/2 ton of ore per fm.

The 80 south, on main part of the lode, is not yielding ore to value. The 60, north and south of Samanraume's cross-cut, yields 3/4 ton of ore per fm. in each end. The 40 south of Agnes', open stoping ground, worth 1/2 ton of ore per fm. The 20 south yields 1 1/2 ton of ore per fm. This adit south yields saving work for a width of 1 foot.

The stolen south continues to yield stones of barites, spotted occasionally with ore. The stopes in back of the 60, north of Richard's, yield 2 tons of ore per fm.; two stopes in back of the same level south yield 2 tons of ore per fm. Three stopes in back of the 40 south yield 2 1/2 tons each; three in back of same, south of Agnes' shaft, yield 1/2 ton each.

Three in back of the 20, south of same, yield 1 ton per fm. each. Three in back of adit south yield 2 1/2 tons each; two in back of stolen 2 tons each.—La Grange: The end of the 20, north of Nosky's shaft, is in a large ledge, 15 ft. wide, ore throughout; the two stopes in back yield well. The adit north is a little improved, yielding stones of ore. The winze in bottom of the adit is holed to the 20, opening a good piece of ground for stopping.—Surfice: We have never, from the commencement of our operations here, suffered so much from want of water. In the Rosier laveries we can only wash two days a week; we are continuing to work the brasher, and piling the sand when crushed. At La Rancante we are doing but very little; the weather continues very dry and hot; we are anxiously hoping for a change. The building of the boiler-house for the new engine at the laveries is commenced, and the necessary preparations for machinery being carried on.

DON PEDRO NORTH DEL REY.—T. Treloar, Sept. 3: I have great pleasure in reporting that, since we have commenced advancing the hire, force is appearing in very satisfactory numbers. The produce for July is not yet ascertained, but from all appearances it will be equal, if not more, gratifying than that of the preceding month. The lodes generally at the points in progress are maintaining their favourable character.

In Baldwin's Mine, in descending, it has again enlarged. At the Bahu we shall, in another month, be fairly on the lode. We have commenced clearing out Cornelius's Mine, and are making preparations to clear out others. At Maquine we are still clearing the place of brushwood. It is pleasing to add we have already seen favourable indications.

Viewing the state of the force, the produce, and the works as a whole, we have every reason to be satisfied.

EAST DEL REY.—Wm. Treloar, July 28: I mentioned last month that we were preparing to make a trial of the ores from the bottom of the Capao Mine; this has been done; 34 tons of ore, freed from kilas, were treated separately at Guy's stamp, and yielded 174 lbs. of gold, or 6-11 lbs. per ton. The pinion-wheel, ordered from Rio, is on its way to this place.—Capao Mine, Henderson's Shaft: The bar of ground under the shaft has been stoned away level with the bottom of the mine. The slime has been cleared, hitches for penthouse have been cut, and the timber will be heaved in shortly. At the horizon of ston, No. 1, we continue to extend eastward on the lode, which is hard, and about 6 feet wide. In driving towards Guy's sink no improvement in the lode has taken place since last referred to; in the stopes below this point the lode is about 4 feet wide, and in descending it evidently gains eastward very quickly. We have put in timber and secured the ground referred to last month. We are now working at underhand stopes upon the western ground; the lode is small, but we think there must be some more to the north, and that the footwall of it has not yet been reached at this point; no time will be lost in ascertaining the fact. The rise on Mill lode has been holed to the surface; we shall now extend westward to examine the wider part of the lode.—Emily Mine: The erection of the new stamp progresses favourably, the stamp frames are fixed, and a solid bed of masonry has been put in as a good foundation for stamping upon. The sleepers for the stamp strakes are also laid in, and the mechanics are now about the water-wheel. The work of cleaning and repairing the Guylinha watercourse advances towards completion; no time will be lost in bringing the water on the mine.—Shoot Level No. 1: The rise from the back of this level has not yet encountered the winze sinking to meet it; there are, however, only about 2 or 3 feet of ground between them, and in a few days more we hope to effect a communication.—Shoot Level No. 2: The ground is favourable for driving, and if it continue so we shall not be long in reaching the point to commence a rise to meet the winze now sinking upon it. The rise from the back of tram level No. 2 has passed through the workings, and is now in a large lode of a promising character.

PACHUCA.—Capt. Paul, July 24: The plat for the new level called La Cruz is completed, and the men are driving south of west to intersect the lode; the ground proved harder than I expected, consequently it took a fortnight longer than the time estimated.

We have already cut some branches of quartz with bronze, and by the latter part of next week we ought to get on the main part, where I hope we shall meet with good ores. We have cut another large lode in San Jorge level east, running a great deal north of east, and letting out plenty of water, quite warm. The water has brought up timber and secured the ground close to the end. The timbermen are busily employed securing it, so I shall not be able to ascertain the width and quality of the lode before next week. There is very little alteration in the San Juan level since my last. I am keeping on the same part—12° north of east—which I think best to continue until we meet with the Viscaina, or get under the large crest on the top of the hill, where the lode is more settled. In San Luis cross-cut we have cut a lode 16 in. wide, of very pretty quartz, with spots of blue ore, but underlying north, the cross-cut south is over 45 yards north of west Santiago level; at surface the lode is very wide, and, if perpendicular, we shall meet with in 5 yards more.

CAPUL.—Aug. 19: Since my last we have driven 4 1/2 varas in San Enrique, at the rate of \$15 per var. For the last three weeks, I am sorry to say, the leader of ore we have been carrying with us has disappeared from the end, which is also rather harder than when last reported. The plat in the adit level is finished, and the tramroad brought into it, and in full work, and we have commenced sinking the shaft. The small lode of San Jose is now in the bottom of the shaft, but is very narrow, and contains only occasional stones of ore: this lode, and that of Nuestro Amo, are approaching a junction eastward of the shaft, where we may naturally expect a deposit of ore, but the quantity produced by these small lodes is at the best but small. We are now stoning the bottom of the cross-cut from the shaft, south to the lode of San Ramon, a distance of 4 varas; we shall then stope the bottom of the level driven on that lode, so as to bring all these workings to the same level, after which the end itself will be continued eastward; in this stope we have broken a few bags of ordinary ore. These so-called small lodes of San Ignacio, San Jose, and Nuestro Amo are so interlaced with each other that I am inclined to think they all form a portion of the great copper vein, which is here in a disordered state, but evidently becoming more settled as it goes down, and I believe at the perpendicularly depth of 20 varas below this point it will be found settled and productive, as just here the ground is much firmer than elsewhere, and the numerous branches form together a large body of vein. Another point of interest connected with these branches is their almost immediate union in depth with the distinct lode of San Ramon, a point towards which we shall soon be in a position to sink.

We have made a pass for the upper level of San Trinidad down to the tramroad, which will enable us to clear the rubbish from the upper workings very economically; this we have already commenced doing, it will take some time to finish, as the quantity to be extracted is very great; but until this is done the upper workings cannot be properly examined, and still less economically worked.

In sinking the shaft the water will be troublesome, especially as we are now in the worst season of the year, but I hope we shall be able to go down with it some 20 or 25 varas

with the appliances we have at command.—Surface: Our surface works are reduced to only those connected with the working of the mine. You will see we have been busily employed, and I am very much pleased at the way the work in every department has progressed this month. Had it always been so, I should have had but little reason to complain. We have on hand about 14 cargas of ore, of about 10 mcs. per moton, from San Enrique; about 20 cargas of stones from the different points, assaying 6 mcs.; a small pile of very ordinary ore that may, perhaps, pay some day for reducing on the spot. You will please observe this ore has been broken only in the course of our regular working, and in collecting timber and shingles for a hut we are about to build without delay.

THE LAW OF MINES.—The new work on the Law of Mines, by Mr. Whitton Arundell, the only cheap book in which the entire subject is completely and ably handled, and no work can be more profitably studied, after the company is formed, than this. The law of mines is in this work treated quite irrespective of the law of mining companies, which are entirely governed by the new Joint Stock Companies Act of 1862. Mr. Arundell's work will be forwarded from our office on receipt of a Post-office order for 4s.

Mining Correspondence.

BRITISH MINES.

ABERDOVEY.—A. Ede, Sep. 1: The lode in the stopes in back of the 42, north of engine-shaft, is 6 ft. wide, producing on an average from 15

55 west, the lode is 1 ft. wide, worth 142 per fathom. The stopes are much as last reported. We are making good progress with King's shaft.

EAST TRESKERBY.—J. Nancarrow, Aug. 31: There has been no alteration of importance since last reported. Everything has been continued without intermission, and since the new lift has been put to work the men are getting on well in clearing east shaft.

EAST WHEAL FORTUNE.—H. Roberts, Sept. 3: The adit shaft is held to the adit level, and all complete for drawing through; the men are now cutting a plait, preparatory to driving east on the lodes, which we hope to commence in a fortnight.

EAST WHEAL GREENVILLE.—G. R. Odgers, W. Bennetts, Aug. 29: The engine-shaft, below the 65, by nine men, at 271 per fm. No lode has been taken down since our former advice. The 65 east, to four men, at 31. 10s. per fm.; lode full 3 ft. wide, producing some very nice ore, worth full 3 tons per fm.; at this level we have driven, including length of shaft, 14 fms., on a very pretty looking lode. The 65 west, to four men, at 41. per fm.; lode 2 ft. wide, a kindly lode, worth from 1 to 1½ ton per fathom. The cross-cut to drive south of the main lode, at the 55, by four men, at 31. 10s. per fm.; here we are expecting to intersect the middle branch in the course of another fortnight. The cross-cut to drive north, by six men, at 31. 10s. per fm.; we have about 10 fms. more to intersect the north lode, and which we think will take six weeks or two months, and which is a splendid speculation. The stopes above the 45, east of the shaft, by four men, at 11. 15s. per fm., worth from 87 to 102 per fm. A stopes below the 45, west of the winze, by two men, at 11. 15s. per fm.; lode worth full 84 per fm.—North Lode: The 45, east of cross-course, to two men, at 41. 10s. per fm.; lode 15 in. wide, and worth full 1 ton per fm.; this is a kindly lode. The 45, west of cross-course, to four men, at 61. per fathom; lode 2 ft. wide, and worth full 1½ ton per fm., also a kindly lode.

—G. R. Odgers, W. Bennetts, Sept. 3: There is no alteration in the 65 east, on the main lode, or in the shaft sinking below the 65. The north lode, in the 45 west, is from 18 in. to 5 ft. wide, and producing full 2 tons per fm.; this lode as we get away from the cross-course is improving. No change in the 65 east since Saturday. In the 45 cross-cut we have met with some very nice ore, indicating that we are approaching the middle branch; this is a favourable symptom.

EAST WHEAL LOVELL.—J. Burgen, Sept. 2: The lode continues to improve both in sinking and at the 26. In the shaft below the 26 the lode is worth considerably above 100s. per fm., and in the back of the 26 the lode is worth over 120s. per fm., with every prospect of continuance, and great profit to the adventurers. Our tin sales will be great than we anticipated.

EAST WHEAL RUSSELL.—Jas. Richards, Sept. 3: In Homersham's shaft, sinking below the 120 fm. level, the progress is slow, owing to the hard nature of the ground.—Homersham's Shaft: In Vigus's cross-cut north, at the 120 fm. level east, the north lode is cut into 9 ft. It is composed of capel, fine gossan, quartz, prian, and a little ore; but as yet no north wall is reached. In the 120 fm. level east, and east of Vigus's cross-cut, on the south part of the lode, 4½ ft. of the lode is being carried, and is exceedingly promising, being composed of capel, mundic, quartz, prian, and ore, worth full 121 per fathom. In the bottom of the 110 fm. level, a new winze, 4 fms. west of Soper's cross-cut, on the south part of the lode, is commenced, in which the lode is worth 81 per fm. In John's winze, below the 100 fm. level east, on the north part of the lode, the lode is 2½ ft. wide, and unproductive. This winze is suspended, and the men are removed to sink the new winze referred to above. In Hooper's rise, in the back of the 88 fm. level, on the north part of the lode, west of Mollard's cross-cut, the lode yields a little ore. In the 45 fm. level east the lode is large, 5 ft. wide, and fine stones of ore are being obtained from them. In Harvey's rise, in the back of the 45 fm. level east, the lode is composed of flookan, peach, quartz, and occasionally stones of ore. In Williams's cross-cut north, at the 85 fm. level west of Hitchins's engine-shaft, the ground is rather hard and slow for progress. We sampled on Friday last, 216 tons of ore.

FRANK MILLS.—J. P. Nicholls, J. Cornish, Sept. 2: We have commenced to take down the west lode, in the 100 north, but have not yet seen enough of it to state its size or value. The ground in the south end, on this lode, is much the same as for some time past, but there are now branches forming in it, producing saving work for lead. We shall, however, soon commence to take down the lode in this end also. The east lode, in the 100 south, is about 2½ ft. wide, consisting of harytes, mundic, and lead ore, yielding ½ ton of the latter per fm. We have extended the cross-cut east from the 72 north, on west branch, about 2 fms., passing through numerous branches of white iron, quartz, jec, and lead ore, worth of the latter 3 cwt. per fm. The lode in the stopes in back of the 60 north is 5 ft. wide, yielding fully 1½ ton of lead ore per fm. The winze sinking in bottom of the 45 is not quite so good as last reported, now yielding ½ ton of lead ore per fm. We have commenced to rise against this winze from the 60, and we hope to effect a communication here in a week or ten days. The tribute pitches are without change to notice. A more detailed report shall follow next week for the general meeting.

GARLDINA UNITED.—J. Rowe, Sept. 1: We set a cross-cut to drive north of Plover's shaft, and one south to intersect Bassett and Grylls and other lodes, on Friday last. We do not expect we shall have many fathoms to drive to intersect one of these productive lodes. The cross-cut to intersect is driven 12 fms. from the shaft, and we may daily expect to cut the lode; ground favourable for driving. In the old mine we have 16 men stowing; these are breaking about 3 tons of tin per month.

GAWTON.—Geo. Rowe, Aug. 29: The new engine-shaft is down 16 fms. below the surface, which is progressing as fast as the nature of the work will admit. The engineers, masons, &c., are busily engaged in erecting the steam-engine. The main beam, cylinder, and boiler are all fixed in their proper position, and no time will be lost in getting the whole of the machinery in motion. We have been enabled to fork the water several fathoms below the 86, and hope in a short time to have sufficient water-power to resume operations on the lode, after which we shall again be in a position to keep up our regular returns.

GOGINAN.—Sept. 1: The lode at the 100, going east from Gilberston's shaft, is without any alteration to notice, since my last report, still a large and strong lode, showing strong spots of lead ore, and letting out a great deal of water. The lode at the 80, west of Bryn Pica shaft, is 3 feet wide, rather soft, but producing good stones of ore at times. Nothing has yet been reported to notice in the cross-cut south at the deep adit level, west of Bryn Pica shaft. The tribute pitches at the different levels in the old part of the mine, six in number, are yielding on an average 10 cwt. of lead ore per fathom. We are progressing well with the work at level Newdd, and have commenced to sink the shaft below the deep adit level.

GREAT BRIGAN.—T. Trelease, J. Edwards, Aug. 29: We have not yet intersected any lode in either of the cross-cuts north and south of the engine-shaft; ground much the same. The lode in the 49, east of cross-course, is 18 in. wide, producing stones of copper ore. The lode in the 42, driving east of Tom's shaft, is 1 ft. wide, producing a little copper ore, but not of much value; the lode in this level, east of Trelease's shaft, is 15 in. wide, yielding a little ore, but not to value; the lode in this level, driving west from Hock's winze, is 18 in. wide, worth 15s. per fm. The lode in the winze sinking below the deep adit level, is now 20 in. wide, worth 41 per fm., of a kindly appearance. We have commenced to drive a cross-cut south at this level to prove if there is any other lode standing in that direction. We are making fair progress in cutting down High-burrow shaft at the different levels.

GREAT DARRON.—R. Williams, Sept. 2: The stopes in the back of the 75 have a little improved for copper of late, while for lead and copper the stopes is of good paying quality. The stopes in the back of Codd level produces some good ore, but has undergone no change lately worthy of notice. We are putting the shaft in order for drawing with a small force, as we have not been able to get the planks sawn, owing to press of work at the saw-mill, but hope to have them in a day or two. In the meantime, the men who would have been in the shaft are in the stopes.

GREAT NORTH DOWNS.—T. Trelease, Aug. 29: The lode in the 57, west of Vigian's engine-shaft, is about 3 ft. wide, yielding a little copper ore, but not of much value; the lode in this level, east of said shaft, is 2½ ft. wide, worth 41 per fm.; the lode in this level, east of said shaft, is 3½ ft. wide, worth 41 per fm.; the lode in the 52, west of Jenkins's shaft, is 3 ft. wide, about 20 fms. from the 57, west of Bryn Pica shaft. The tribute pitches at the different levels in the old part of the mine, six in number, are yielding on an average 10 cwt. of lead ore per fathom. The lode in the 52, west of Bryn Pica shaft, is 3½ ft. wide, worth 41 per fm., of a kindly appearance. The lode in the 49, east of cross-course, is 18 in. wide, producing stones of copper ore. The lode in the 42, driving east of Tom's shaft, is 1 ft. wide, producing a little copper ore, but not of much value; the lode in this level, east of Trelease's shaft, is 15 in. wide, yielding a little ore, but not to value; the lode in this level, east of Hock's winze, is 18 in. wide, worth 15s. per fm. The lode in the winze sinking below the deep adit level, is now 20 in. wide, worth 41 per fm., of a kindly appearance. We have commenced to drive a cross-cut south at this level to prove if there is any other lode standing in that direction. We are making fair progress in cutting down High-burrow shaft at the different levels.

GREAT SOUTH TOLGUS.—J. Daw, Sept. 2: The lode in the 124, west of Lyle's shaft, we have just cut a kind of capel, mixed with gossan, mundic, and copper: we shall see more of it in two or three days, and write you again.

GREAT SOUTH TOLGUS.—J. Daw, Sept. 2: The lode in the 124, west of Lyle's shaft, has improved in the past week, and is now worth 40s. per fm. for tin.

GREAT WHEAL BADDERN.—J. John Jenkins, Aug. 28: We have nothing new to communicate from Hill Brothers shaft since last report; we prepare to drive cross-cut on Monday next. The 12 east, on the tin lode, is looking much as usual. The 29 is in fork, and we have been west of the stamps about 75 fms., and are much pleased with the appearance of the tin lode. We are about to drive a short cross-cut from No. 3 shaft to the old level, to ventilate the western part of the mine, when much tribute ground will be at once available. The tribute department is looking much as usual. We intend to light the fire in the burning-house to-morrow, or on Monday next. The stamps are working well.

GWYDYN PARK.—W. Smyth, Sept. 2: We have not taken down any lode in the rise in back of Gwydnyr Park deep adit this week, therefore I cannot report any change; I have again set the rise for four men at 11. per fm.; stent for the month, or hole to be cut sometime ago; it is more open than it has been; it is at present about 8 in. wide, composed of spar, gossan, blende, and spots of lead ore; it is improving I have set 1 fm. more of it to six men, at 61. The lode in the Red lode shaft is improving; at present it is about 18 in. wide, composed of blende, gossan, and strong spots of lead ore; the sinking has been impeded of late in consequence of the heavy falls of rain, and if we had not the drains made to carry off the surface water, it would fill it; I have again set the sinking to six men, at 91. per fm., 1 fm. stent; the reason I did not give them a longer stent is because I am expecting the ground to improve. We have found the Rhaetha lode in the shod pit, near the boundary of our set; it is about 1 foot wide; it seems to be running further through our set than I expected.

HARWOOD.—J. Race, Aug. 31: At our setting the level is set to drive east at 57s. per fathom. The end of the drift east in the vein is poorer. We are stowing the vein east of No. 3 rise; it is set to two men, at 30s. per fm., worth 1 ton of ore per fm. We are driving the drift in the west end; it is set to two men, at 54s. per fm., and stowing down the back to two men, at 48s. per fm.; each place is worth ½ ton of ore per fm. We have 8 or 9 tons of ore dressed, and more on the floors.

HAWKMOOR.—J. Richards, Sept. 1: West Hawkmoor: No. 3 lode, driving west, is 1 ft. wide, composed of quartz, capel, and good spots of tin ore—a very promising lode. The lode in the rise in the back of this level is 2 ft. wide, composed of peach, capel, mundic, and good work for tin ore. Good progress is being made in sinking the shaft, and the lode is of a promising character. Having sufficient water now to keep the mine in fork to the 30, the men have resumed their pitches.

HINGSTON DOWN CONSOLS.—T. Richards, Sept. 2: No important alteration has taken place in the mines since the report for the general meeting. The sampling for our next sale of ore is computed at 410 tons.

HOLMBUSH.—R. Pryor, T. Woolecock, J. Borriar, Aug. 29: The pitch in bottom of the 175, east of shaft, has improved; the lode is worth 15s. per fm. The lode in bottom of the 170, west of No. 2 winze, from the 160, and west of the lead lode, is worth 30s. per fathom; this being stoned by 12 men. The tribute pitches in back of the 160 are looking much the same. The lode in the 80, west of Hitchins's shaft, and west of the lead lode, is improving as we get off from the influence of the lead lode; the lode is yielding good stones of copper ore, with a promising appearance. We have communicated the rise from the back of the 30, on flap-jack lode, to tributaries' bottoms, and have taken two of the men and put them in the 30, which will make six, so as to push it on as fast as possible. The whim, &c., is completed for drawing at the eastern part of the mine, and we shall commence clearing up Holmbush old engine-shaft next week. We are getting on favourably with the dressing, &c., for the sampling, which will be about 160 tons of copper ore.

KELLY BRAY.—S. James, Sept. 2: The lode in the rise in the 95 east is about 1½ ft. wide, producing a quantity of mundic and good stones of ore, opening tribute ground. The lode in the 25 east is getting into a more settled state since we have passed through

the large run of gossan which was met with at the above point, and disordered the lode; it is now producing good stones of ore, and the ground easy for progress, showing indications of an improvement are long. The tribute department is looking a shade better than for some time past.—Eastern Mine: The lode in the 70 is looking promising to improve; it is now carrying a leading branch on the north or footwall, composed chiefly of quartz and mundic, and all the end from 3½ to 4 ft. wide is strongly mineralised, with branches containing quartz, mundic, and rich spots of copper ore dipping towards the north or leading part of the lode. We sampled on Aug. 28, 151 tons of ore (computed).

LADY BERTHA.—Capts. Harper and Methereil, Sept. 2: To-day is our pay and setting, which has passed off all right, particulars of which will be forwarded to you. Since our last report no material change has taken place in either of the ends or pitches to call forth any remark on the present occasion. The character of the ground in the new shaft is without change.

LADY BERTHA.—Capts. Harper and Methereil, Sept. 2: In the 55 west we are just now cutting into the lode; so far as seen it is composed of quartz, iron, mundic, and stones of ore. Since our last report we have effected a communication with the winze sinking below the 30 east, and the rise above the back of the 41, and have commenced stopping the bottom of the 50, west of the mid winze, where the lode is from 2 to 3 feet wide, composed of quartz, mundic, and iron, worth of the latter 3 tons, or 91 per fathom. The lode in the 30 east is 1 ft. wide, consisting of peach, prian, and mundic, with a little water issuing from it. In the 20 east the lode is 5 ft. wide, composed of mundic, quartz, and peach, intermixed with stones of ore. The tribute department is yielding much the same as for some time past. There is no change to notice in the new shaft. We are pushing on the sinking as fast as possible.

MAUDLIN.—T. Tregay, Aug. 29: Sump-shaft: We have got the north wall at the 70; the lode here is 18 ft. wide, composed of mundic and copper ore. We shall commence driving east and west on the north part of the lode on Monday.

MINER UNION.—W. T. Harris, Sept. 3: Brabner's shaft is down 8 yards below the 60; the ground continues much the same as for some time past. The 80 north progresses satisfactorily; the lode is 3 ft. wide, of a highly promising character, producing a little lead, and letting out a quantity of water. The lode in the stopes in the back and side of this level is worth 10 cwt. of lead per fm.—Williams's Shaft: The lode in the 40 is worth 15 cwt. of lead per fm. The pitch in the back of this level is worth 8 cwt. of lead per fathom. There is no alteration in any other part of the mine since my last.

MANGLES.—J. Rowe, Sept. 2: We have been sinking the engine-shaft on the north lode, leaving the south one standing. The north lode is 4 ft. wide; a part about 18 in. wide, close on the north wall, contains some rich quality copper ore, mixed with mundic; this lode is now worth for copper 122 per fm. in the length of shaft; 2½ ft. of the north lode is mixed with very kindly quartz, mundic, and copper. The north and south lodes, in the shaft, are separated by a wall only; they appear up to the present time to be going on parallel. The last taking down of the south lode was worth 50 per fm. for the length of shaft. I see no signs of its failing in value, taking the two lodes; I call the shaft to be worth full 607 per fm.; it never looked so promising as to-day. We shall take down the south lode before the week is out. The 86, east of Broad and Cheese shaft, and on the same lode, which has just come into engine-shaft, is worth 29 per fm.; this end is 40 fms. west of the engine-shaft, and near 10 fms. above the bottom of it. Nothing new to report on in any other part of the mine.

NANTES.—H. Williams, Sept. 2: There is nothing new to report, from the fact of our having been driving by the side of the lode all the month. We shall take it down next week, when the result shall be reported to you. I may mention that there are some strings and spots of ore are driving through, which seems to indicate a good lode. The south of the lode also shows spots of ore as we pass on, and I hope to find on taking it down an improved piece of lode.

NANTY.—Aug. 31: The lode at the roadway level, going north of boundary, is large, and of a promising character, yielding a little ore, but not to value at present. The lode at the 10, north of boundary, is 8 ft. wide—very kindly lode, showing strong spots of lead ore, and letting out a great quantity of water, which is a favourable indication; this point is being pushed on with all possible dispatch by six men. The stopes over this level, three in number, are producing on an average 14 cwt. of lead ore per fathom. The lode in the deep adit level, going north of boundary, is 5 ft. wide, producing a little ore, but not to value, and still letting out a large quantity of water; this point is being pushed on by six men. The stopes over this level, four in number, are producing on an average 12 cwt. of lead ore per fathom. The dressing, with all other surface work, is progressing favourably. We are getting on well with the cutting down and widening of the roadway level. We hope to sample about 112 tons from this time at our next sampling day.

NETHER HEARTH.—Wm. Vipond, Aug. 28: There is no change to notice in the end of the level this week; the men have driven the last month 6 fms. 0 ft. 6 in. of ground; we are now about 15 fms. from the next east and west vein.

NEW CHOW HILL.—R. Hancock, S. Collins, Sept. 1: We have cross-cut the lode at the 55, and find it 6 ft. wide, producing good work for lead and mundic, of a kindly appearance. The lode in the 35 end is producing just the same quantity of lead per fathom as last reported; we shall recommend the stopping of this end after this month for this reason—we have the backs from the 55 coming up to this end in a few months, which will save the cost of driving the same, and put the same expense to stop the lode over this end. The two stopes in back of the 55 are yielding just the same quantity of ore as last reported. The stopes in back of the 35 are producing good work for lead and mundic, of a promising appearance to last. We have put two of the 35 fm. level ends to report more fully on its value next week. The 70, west of Carr's, by four men, at 61. 10s. per fathom; the end is very wet. A rise in back of the 70 east towards Good Fortune, by two men, at 81. per fathom. A winze to sink below the 50, west of engine-shaft, by six men; a 71. per fathom; this rise is going up under the grey ground gone down in the 80. A stop in back of the 50, east of the shaft, by four men, at 41. per fm.; this stop is worth 2 tons of ore per fm. A winze to sink below the 70, 15 fms. before the above stop; the lode here is large, and looking very promising, but shall be able to report more fully on its value next week. The 70, west of Carr's, by four men, at 61. 10s. per fathom; the end is very wet. A rise in back of the 70 east towards Good Fortune, by two men, at 81. per fathom. The 70, west of Symon's shaft, by four men, at 71, and to be allowed 61. for taking down the lode, 4 fathoms long. A stop in back of the 60 by two men, at 41. per fathom; this stop is worth 7 per fathom. Two stopes in back of the 50, at Symon's shaft, by five men, at 31. per fathom; the stopes on an average are worth 61 per fm. A winze to sink below the 44 towards the 70, at Carr's. The bearers, cistern, and standing-lit are completed at the 70 in Good Fortune shaft; this with the two plunger-lifts are answering very satisfactorily. The lode standing in that direction. We are making fair progress in cutting down High-burrow shaft at the different levels.

NEW WHEAL MARTHA.—G. Rickard, Sept. 3: The lode in the 74 fm. level east is producing 3½ tons of copper ore per fm., and likely to improve. In cross-cutting the lode at the above level we find it fully 24 feet wide, and not yet through. The lode in the 64 west has a very kindly appearance, composed of capel, spar, and prian, with good saving work for copper ore. The lode in the same level east is composed principally of spar and mundic, with spots of copper ore. The lode in the winze, sinking below the 52 fm. level, still retains its value—207 per fm., with every indication of improvement. The lode in No. 1 slope is producing 5 tons of copper ore per fm.; No. 2 slope is producing 7½ tons of copper ore per fm. The winze sinking in the bottom of the 40 is at present unproductive. Our sampling is computed at 433 tons of copper ore of the usual quality.

NEW WHEAL PROSPIDNICK.—Wm. Bishop, Jun., Sept. 1: The men are making fair progress in cutting the tip-flat in the 45, at Watson's. We have taken down

MINING NOTABILIA.

EXTRACTS FROM OUR CORRESPONDENCE.

PONTGIRAUD MINING COMPANY.—I am informed that last year's workings will leave a profit, after paying all expenses, but as they cannot divide more than £5. per share, the directors here (Paris) will advise to pay no dividend. The liabilities are 132,000 francs, Government loans at 5 per cent., to be paid back in 15 years; and 218,000 francs obligations, they have to reimburse 26,000 francs per annum, so that the payments on these loans require about 40,000 francs. The yield is good, and was good all last year, and still continues so from the mines; but they had little water in August, so the return this month will be small. One of the mines is worked out, and is abandoned. About two months ago a new vein was discovered, which promises to be rich in silver—they hope 2 kilos. to the ton, whilst the present yield is 1100 grammes (1000 grammes = 1 kilo, and 1 kilo = 2 lbs, 16-32 ozs.) The depth of the mine is 130 yards. I think the dividend, even of £5. per share, should be paid, so many years having elapsed since receiving one, and the prospects being good for the future.

NANGILLES adjoins the celebrated Clifford Amalgamated Mines, embracing all their rich lodes. The great point of interest at present is the engine-shaft, sinking under the 90, worth 50L per fathom for copper, and improving as the lode is being taken down. The 96 west is also looking well, worth from 20L to 30L per fathom.

NORTH POOL.—In the shaft, 18 fathoms from surface, the lode has been cut 4 ft. wide, composed of gossan, quartz, black oxide of copper ore, with a leader 6-inches wide of yellow copper ore on the hanging wall. This is considered of the greatest importance, from the fact that this point is in close proximity to the cross-course upon which Agar, East Pool, South Crofty, and Carn Brea, have expended a considerable sum of money in erecting machinery to develop parallel lodes.

EAST WHEAL RUSSELL.—The 120 east has further improved, now valued at full 12L per fathom. The main run of ore ground in the levels above is still some fathoms ahead, so that this improvement in the 120 is of considerable importance. The two-monthly sampling of ore is 218 tons, and is more than was expected.

TYWARNHAILE.—This mine is opening well, and in a few months will likely increase its returns considerably. It will, probably, become one of the largest producing copper mines in Cornwall.

SOUTH DARREN.—A valuable discovery has lately been met with in the 30 west at this mine, and which is going into rising ground close to the surface. The end is worth 2 to 3 tons of rich silver-lead ore per fm., and has been of that value for the last 4 fms. The 20 west, about the same distance, is improving; and the 40 west, about 10 or 12 fms. is yielding ore, and is being pushed on as fast as possible.

CARDIGAN CONSOLS.—In about three weeks about 100 tons of ore will be sampled, which will, probably, realise at least 1500L.

The **DUCHY TAMAR MINE** will be shortly before the public. The position is good, being opposite Devon Great Consols, and in the immediate locality of New Wheal Martha, Hingston Down, and other mines. The mine has been inspected by several practical agents, whose reports will shortly appear in the Journal. This piece of mining ground is likely to become a great prize. Capt. J. Richards is understood to be appointed manager, and from his well-known ability, energy, and long experience the adventurers will be in safe hands.

At **WHEAL CROFTY**, only a short time resumed working, a fine course of ore is discovered in driving from Square's shaft; it appears to be a new lode. The fortunate adventurers may congratulate themselves in having a good mine.

EAST RUSSELL is looking much better at several points, more especially at the deeper levels.

ST. IVES WHEAL ALLEN.—This mine is now under the management of Capt. Nancarrow, of the celebrated adjoining mine, St. Ives Consols. Capt. Nancarrow thinks well of the prospects of Wheal Allen, and from his being on the spot, and from his intimate knowledge of the district, together with his judgment, and attention to the mine, it is expected that a favourable change will take place in its state after some time. There are 1024 shares, about 11L per share paid, and good machinery (including two steam-engines) on the mine.

NEW TREVENEN.—An improvement has recently taken place in the lode in the boundary shaft at this mine, which is now yielding some fine stones of tin, and showing every appearance of improving in depth.

WHEAL CROFTY.—In the 35 the lode is more than 9 ft. wide, 5 ft. of which are good ore ground for copper, turning out at least 4 tons to the fathom. In the 24, west of Square's shaft, the lode is reported as equally good; this lode, which is parallel to the main, or engine lode, the great lode of Old East Wheal Crofty, has never been worked, although it can be reached by cross-cuts of 2 to 6 fathoms at any point down to the 125: this is, therefore, a most important discovery, especially when occurring in the very heart of the richest district in the world for copper.

ROSEKAR.—This mine, immediately adjoining Wheal Crofty, is now about to be worked with vigour, the cost book was formally opened on the 1st inst., and more than 4000 out of the 6000 shares taken. This may be looked upon as a first-class undertaking, since when the mine was stopped it was almost paying costs, although tin was 20L per ton cheaper than at present, and, independently of tin, the mine returned 250,000L worth of copper from one lode only in the last working.

CLIJAH AND WENTWORTH.—Camps. F. Pryor and C. Glasson, in their report, say—Since the last meeting we have driven the 80 cross-cut north 13 fms., and are daily expecting to cut the Bucket's and Uny lodes. The 40, east of cross-cut, on Whitford's lode, is opening up tribute ground, and the 30 east is worth 8L per fathom. A winze sunk in the bottom of this level to the 40 has opened up a first-rate piece of tin ground, as the winze for the first 9 fms. sunk was worth 10L per fathom, and the remainder of the distance fine tribute ground. We are pleased to say that the lode in the 20, east of rise, on the same lode, is worth 8L per fathom; this end is 7 fms. behind the 30, and we look forward to a continuation of this valuable tin ground. We have 27 men on tribute, at 8s. 6d. in 1L, and 26 men on tutwork.

WHEAL LOVELL.—I am pleased to hear that a company for the reworking of Wheal Lovell has been formed, and a meeting of the shareholders was recently held, when it was resolved that active operations should be at once commenced. The engine-shaft is being timbered in a very efficient manner to the adit, and the engine will soon be at work. Mr. Carne having expressed a desire to give up the partnership, it was accepted by Mr. T. J. Tyacke, of Helston, who has the confidence of the company in every respect, and is a fit successor to Mr. Carne. There can be little reasonable doubt of the success of the speculation, and the names of the shareholders give a guarantee that the objects named in the prospectus will be fairly and spiritedly followed out, to do which there is ample machinery, all fixed in the best possible position for its intended work. A more legitimate speculation has not been brought before the public since that of Wheal Basset and Grylls—the prospects are equally good, and the prospective outlay about the same amount.—**STANNUM.**

CROWAN CONSOLS.—The operations now in progress at this mine prove that the high opinion which has always been entertained of it will soon be realised. The lode now cut is improving in value; pitches are set at a low tribute, and more tribute ground opening up, and before long very profitable returns will be made. Looking at the locality, the numerous valuable lodes in the sett, the abundance and richness of the ore, and the discoveries just made, shareholders may look forward with confidence to an increasingly valuable mine being opened up; indeed, by those who know the property, there cannot be two opinions as to the results which will follow its judicious development.

WHEAL CURTIS (Crown).—The lode in the 10 fm. level west, on the Dumpery lode, has greatly improved during the last few days, and is worth about 2 tons per fm. for copper. Two or three pitches are already set at a low rate of tribute, and this mine bids fair to equal the richest mines of the district, which in former years held a position similar to that now held by the Camborne, Gwennap, and Illogan districts.

NANGILLES AND CLIFFORD AMALGAMATED.—Both these mines have greatly improved. Shares in the former have advanced from 6L to 28L; and in the latter from 20L to 36L, within the last three months. Nangilles adjoins Clifford, therefore embraces the same lodes; there is every prospect of these shares going to 100L each, and the mine turning out a lasting dividend-paying property. All the required machinery is upon the mine, and in good working order. The lode in the shaft is worth 60L per fathom; and in the 86 end (Bread and Cheese shaft), 20L per fathom. There are only 1024 shares, with 14L paid. Shareholders in Clifford Amalgamated would do well to buy into Nangilles, at 28L per share, while they can be had.

NEWTON LEAD MINES (Breconshire).—Great activity is being manifested in bringing this mine (formerly called Abergavenny) into a working state. It is not six months ago that this valuable property was obtained by a gentleman well known in mining circles (Mr. Josiah Harris). Since then numerous levels have been cleared, the water-wheel repaired, extensive reservoirs made, and some splendid courses of ore laid open upon the celebrated Red lode, now producing at Nanty Mwyn 100 tons of lead ore per month. The property is very extensive, being three miles on the course of the lodes. Mr. Harris is confining his operations at present to the Red lode. There are eight other lodes well known to be in the property.

TYWARNHAILE MINE is gradually improving both in quality and quantity; the last sale, with carriage, realised nearly 1500L; the next is expected to be 1700L. No doubt shortly the mine will pay expenses, and may be expected to be in the Dividend List, as returns will be greater and expenses much less. All the required machinery is being erected. Great credit is due to the agents for the energy shown in bringing the mine to its present good position.

NEW PATENTS.

PROVISIONAL PROTECTION for six months has been granted for the following during the past week:—

E. B. WILSON, Parliament-street, Westminster.—Improvements in blast-furnaces. Dated August 14.

G. DAVIES, Lincoln's Inn, Middlesex.—Improvements in furnaces for heating, flattening, &c. T. BOUSFIELD, Brixton, Surrey.—Improvements in the manufacture of cement. Dated August 15.

H. RONNISON, Skipton, York.—Improvements in lime-kilns. Dated August 18.

LIST OF SPECIFICATIONS published during the week ending August 22:—

Preventing over-winding at collieries, &c., 6d.; furnaces, 6d.; caustic soda, &c., 4d.; application of power to stationary and traction engines, &c., 6d.

Furnished by L. DE FONTAINEMERLEAU, Patent Agent.

WEATHER PREDICTIONS.

SIR.—Since my last the weather has been somewhat showery, but nothing to hurt the grain, or alarm our farmers. With reference to the future, after the 6th the weather will be generally fine. The late thunderstorms have considerably shaken the atmosphere, and given us rather more rain than I expected. For the sake of the pastures, I am glad it has been so.

26, Throgmorton-street, Sept. 3. GEORGE SHEPHERD, C.E., Author of the "Climate of England."

Bird.—On August 25, at Mona Lodge, Amlwch, Anglesey, North Wales, aged 64, Mr. EVAN EVANS, who for the last 50 years was in the employ of the Mona Mining Company—much respected as a public man, and regretted by all who knew him.

* * * With this week's Journal we publish a SUPPLEMENTAL SHEET, which contains an epitome of the contents of many of the more interesting papers read before the British Association for the Advancement of Science, at the meeting at Newcastle-on-Tyne, just concluded; upon a future opportunity we shall allude to other of the papers. An interesting paper on Aluminium will also be found, and various other useful information.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET—LONDON, Sept. 4, 1863.

| COOPER. | | BRASS. | | IRON. | | LEAD. | | SPELTER. | | TIN. | | TIN-PLATES. | | WHEAL. | | |
|------------------------|-----------------------|-------------------|------------------|----------------------------|-----------------|---------------|-------------|----------------------------|-----------------|--------------------------|-----------------|--------------|-------------------|-------------------|--------------------------|----------|
| Per Ton. | Per fm. | Per Ton. | Per fm. | Per Ton. | Per fm. | Per Ton. | Per fm. | Per Ton. | Per fm. | Per Ton. | Per fm. | Per Ton. | Per fm. | Per Ton. | Per fm. | |
| Best selected...p. ton | 28 0 0 — | Sheets | 8 1/2d.-10 1/2d. | Tough cake | 25 0 0 — | Wire | 9d.-9 1/2d. | Tube | 11d.-12 1/2d. | Swedish, in kgs (rolled) | 15 10 0 — | Foreign | 10 1/2d.-12 1/2d. | Ditto, in faggots | 15 0 18-0 0 | |
| ditto | 25 0 0 — | 10 1/2d.-12 1/2d. | ditto | 10 0 0 — | Ditto | 17 0 0-18 0 0 | Bottoms | 10 0 0 — | Ditto | 18 0 0-23 0 0 | English, Spring | 12 0 0 — | Old (Exchange) | 25 0 0 — | Bessemer, Engineers Tool | 44 0 0 — |
| ditto tubes | 0 1 0 1/2d. 0 1 1/2d. | Spindles | 30 0 0 — | Spindles | 30 0 0 — | Spindles | 30 0 0 — | Spindles | 30 0 0 — | Spindles | 30 0 0 — | Spindles | 30 0 0 — | Quicksilver | 7 0 0 p. bottle | |
| ditto | 0 1 0 1/2d. 0 1 1/2d. | At the works | 20s. less | Bars, Welsh, in London | 7 0 0 — | At the works | 20s. less | Bars, Stafford, in London | 8 5 0 — | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars | 8 0 0 — | At the works | 20s. less | Bars | 8 0 0 — | At the works | 20s. less | Bars, ditto | 8 0 0 — | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, to arrive | 7 0 0 — | At the works | 20s. less | Hoops | 8 17 0 6-9 2 6 | At the works | 20s. less | Hoops, ditto | 8 17 0 6-10 5 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Nail rods | 7 10 0 7-15 0 | At the works | 20s. less | Sheets, single | 9 17 0 6-10 5 0 | At the works | 20s. less | Sheets, single | 9 17 0 6-10 5 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, ditto | 8 5 0 — | At the works | 20s. less | Fig. No. 1, in Wales | 3 10 0 4-6 0 0 | At the works | 20s. less | Fig. No. 1, in Wales | 3 10 0 4-6 0 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, ditto | 8 0 0 — | At the works | 20s. less | Redined metal, ditto | 4 9 0 5-6 0 0 | At the works | 20s. less | Redined metal, ditto | 4 9 0 5-6 0 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, ditto | 6 5 0 — | At the works | 20s. less | Ditto, merchant, in Tens | 6 12 0 6-5 0 0 | At the works | 20s. less | Ditto, merchant, in Tens | 6 12 0 6-5 0 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, ditto | 6 12 0 6-5 0 0 | At the works | 20s. less | Ditto, railway, in Wales | 6 12 0 6-5 0 0 | At the works | 20s. less | Ditto, railway, in Wales | 6 12 0 6-5 0 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, ditto | 11 10 0 12 0 0 | At the works | 20s. less | Ditto, Swed. in London | 11 10 0 12 0 0 | At the works | 20s. less | Ditto, Swed. in London | 11 10 0 12 0 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, ditto | 11 10 0 12 0 0 | At the works | 20s. less | Ditto, to arrive | 11 10 0 12 0 0 | At the works | 20s. less | Ditto, to arrive | 11 10 0 12 0 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, ditto | 11 10 0 12 0 0 | At the works | 20s. less | Ditto, 100 ft. to 1000 ft. | 11 10 0 12 0 0 | At the works | 20s. less | Ditto, 100 ft. to 1000 ft. | 11 10 0 12 0 0 | At the works | 18 15 0 — | At the works | 18 15 0 — | At the works | 23 10 0-24 0 0 | |
| Bars, ditto | | | | | | | | | | | | | | | | |

Capt. Charles Thomas, of Dolcoath; Francis Oates, of St. Just; B. Berryman, of Boscean; James Thomas, of North Levant; James Bennett, of Spears Moor; John Cartew, of St. Just United and other mines, and by several other well-known and practical miners.

The West Wheal Friendship Copper Mining Company has been constituted on the limited liability principle, with a capital of 30,000*l.*, in shares of 1*l.* each, the whole of which is to be paid up upon allotment: the prospectus will be found in another column. Capts. Josiah Hitchins and James Richards have reported favourably upon the prospects of the undertaking. The Old Wheal Friendship, an adjoining mine, has been worked some sixty years, and during that period each share has returned to its fortunate owner the sum of 24*000*l.**, yielding over 35,000*l.* clear profits to its proprietors. The lodes that have been worked with such glorious results in this mine run, it is stated, through the West Wheal Friendship sett. On this point those who know the district have no doubt at all. Capt. Hitchins says the lode is 12 feet wide, capel included, and in the adit level its linear course is about 15° north of west, and its declination 27° to the north, corresponding precisely in such particular characteristic with the main lode in Wheal Friendship. On the erection of a powerful engine, and the mine being cleared of the water and accumulated rubbish, it is confidently expected that ore will be at once obtained, as it is the opinion of those well acquainted with the workings by the former proprietors, that at the time the operations were suspended the main lode had actually been cut in the adit. It is believed that West Wheal Friendship will very speedily take its position among the dividend-paying mines of the neighbourhood.

A Steam-Boring Company, to contract for boring for minerals, boring Artesian wells, and proving foundations for buildings, &c., is now being formed. The head quarters are to be in London, but directors, referees, brokers, &c., will be in various parts of the country. The London and Glasgow officials, we understand, are already fixed, and orders for several boring engines for the Continent have already been obtained.

The following are the Government Returns of the exports of article identified with mining, the produce and manufacture of Great Britain, for the seven months ending July 31, 1863; and also as compared with the month ending July 31, 1862; extracted from the "Accounts relating to Trade and Navigation," published by the Board of Trade:—

| DECLARED VALUE FOR THE SEVEN MONTHS ENDING JULY 31. | | | |
|---|---------------------|---------------------|-------------|
| | 1862. | 1863. | Increase. |
| Coals and culm | £2,103,680 | £2,073,856 | |
| Hardwares and cutlery | £1,793,812 | 1,966,691 | |
| Do. surgical instruments | 165,277 | 162,751 | |
| Do. agricultural implem. | 256,218 | 251,422 | |
| Do. other sorts | 1,872,817=3,857,624 | 1,542,518=3,918,382 | ... 325,758 |
| Machinery | | | |
| Steam-engines | £88,732 | 92,776 | |
| Othersorts | 1,306,716=2,195,448 | 1,326,691=2,247,467 | ... 52,019 |
| Total | £7,886,752 | £8,234,205 | ... — |
| Metals:—Iron—Pig | £ 715,138 | £ 744,349 | |
| Bar, bolt | 1,245,794 | 1,378,850 | |
| Railway | 1,600,883 | 1,851,150 | |
| Wire | 150,925 | 237,061 | |
| Ditto telegraphic | 194,953 | 59,554 | |
| Castings | 224,674 | 427,288 | |
| Hoops | 561,911 | 863,775 | |
| Wrought | 1,085,397 | 1,151,082 | |
| Old | 53,591=5,932,866 | 40,899=6,754,008 | ... 821,643 |
| Steel | 507,343 | 607,374 | ... 31 |
| Copper Unwrought | 277,565 | 742,903 | |
| Wrought | 1,091,276 | 1,457,211 | |
| Other sorts | 87,669=1,456,510 | 35,944=2,234,058 | ... 777,548 |
| Brass | 114,063 | 124,109 | ... 10,046 |
| Lead—Pig | 414,112 | 488,189 | |
| Ore | 117,666=531,778 | 90,328=578,517 | ... 46,739 |
| Tin—Unwrought | 287,162 | 274,842 | |
| Tin-Plates | 766,683 | 780,600 | ... 13,917 |
| Zinc | 55,064 | 50,747 | |
| Grand total | £17,637,721 | £19,538,460 | £2,047,700 |
| Less decrease—Coals and culm, 50,324 <i>l.</i> ; tin unwrought, 12,320 <i>l.</i> ; zinc, 4317 <i>l.</i> | | | 46,961 |
| Total | | £2,000,739 | |

At Camborne Ticketing, on Thursday, 3260 tons of ore were sold, realising 16,905*l.* 19*s.* 6*d.* The particulars of the sale were:—Average standard, 115*l.* 14*s.*; average produce, 6*s.*; average price per ton, 5*s.* 4*d.*; quantity of fine copper, 223 tons 12 cwt. The following are the particulars:

| Date. | Tons. | Standard. | Produce. | Price per ton. | Ore copper. |
|----------|-------|-----------|--------------|----------------|-------------|
| Aug. 6. | 333 | £119 4 0 | 65 <i>s.</i> | £5 4 0 | £78 0 0 |
| " 13. | 2825 | 118 11 0 | 67 <i>s.</i> | 5 8 0 | 78 9 0 |
| " 20. | 5173 | 124 8 0 | 5 <i>s.</i> | 4 8 0 | 76 14 0 |
| " 27. | 2872 | 118 7 0 | 63 <i>s.</i> | 5 0 6 | 78 11 0 |
| Sept. 3. | 3260 | 118 14 0 | 7 <i>s.</i> | 5 4 0 | 75 12 0 |

Compared with last week's sale, the decline has been in the standard 1*s.*, and in the price per ton of ore about 1*s.* 6*d.* Compared with the corresponding sale of last month, the decline has been in the standard 2*s.* 10*d.*, and in the price per ton of ore about 4*s.*

The following dividends have been declared during August:—

| Mines. | Per share. | Amount. |
|----------------------|------------|-------------|
| Miners | £7 15 0 | £13,950 0 0 |
| Wicklow | 1 6 0 | 6,600 0 0 |
| Tin-croft | 1 0 0 | 6,000 0 0 |
| Dolcoath | 8 0 0 | 2,864 0 0 |
| West Wheal Seton | 5 0 0 | 2,000 0 0 |
| Hibernian | 2 0 0 | 2,000 0 0 |
| Clifford Amalgamated | 0 12 6 | 1,812 10 0 |
| Providence | 1 5 0 | 1,400 0 0 |
| Botallack | 7 0 0 | 1,400 0 0 |
| Great Wheal Fortune | 0 18 0 | 1,348 10 0 |
| Lisburne | 3 0 0 | 1,200 0 0 |
| Cargill | 1 5 0 | 1,145 0 0 |
| Wheal Seton | 3 0 0 | 1,188 0 0 |
| Wheal Tremayne | 9 10 0 | 1,022 0 0 |
| St. Ives Consols | 1 0 0 | 949 0 0 |
| East Pool | 5 0 6 | 610 0 0 |
| Bronfod | 0 2 6 | 625 0 0 |
| East Darren | 2 0 0 | 600 0 0 |
| Wheal Trelew | 0 10 0 | 520 0 0 |
| Cwmystwith | 4 0 0 | 512 0 0 |
| Wheal Bassett | 1 0 0 | 512 0 0 |
| Wheal Owles | 5 0 0 | 400 0 0 |
| Yudanamutana | 0 5 0 | 11,250 0 0 |
| Total | | £59,829 0 0 |

At the Minera Mining Company meeting, on August 7, a dividend of 7*s.* 1*d.* per share, free of income tax, was declared, thus making for the year, to June 30 last, 29*s.* 1*d.* per share, equal to 11*s.* per cent. on the share capital for twelve months.

At East Pool Mine meeting, on Monday, the accounts for June and July showed a credit balance of 746*l.* 3*s.* 9*d.* The profit on the two months' working was 551*l.* 8*s.* 2*d.* A dividend of 64*l.* (5*s.* per share) was declared. Capts. W. S. Garby, N. Tamlyn, and J. Maynard, reported upon the mine.

At the Wicklow Copper Mine Company meeting, on Monday, a final dividend of 2*s.* per share was declared. A special vote of thanks was accorded to the directors, for their attention to, and successful management of, the affairs of the company.

At Boscastle Miners meeting, on Aug. 28, the accounts for the quarter ending June showed a credit balance of 728*l.* 10*s.* 7*d.* The total for three months were 2485*l.* 4*s.* 9*d.* A dividend of 312*l.* (5*s.* per share) was declared, and 416*l.* 10*s.* 7*d.* carried on. The tributaries throughout the mines are raising good quantities of tin-stuff. They have 38 bargains: 13 levels and 2 winzes on turtwork, and 23 pitches on tribute. Capts. W. Noy and J. Guy reported on the mine.

At the Wheal Jane (Kea) meeting, on Monday, the accounts showed a credit balance of 298*l.* 0*s.* 7*d.* Capts. T. Bray and W. Giles reported that—"We have 11 turtwork bargains, employing 42 men and 29 boys. The tribute department is looking well; we have 23 pitches, employing 53 men and 5 boys, at a tribute varying from 3*s.* 6*d.* to 1*s.* 11*d.* The amount realised on the last two sales of the ore, for which credit is not given to-day, is 1750*l.* 6*s.* 4*d.*, also 200 tons of mudiude, 172*l.* 10*s.* which augur well for the next account."

At the Garden Mine meeting, on August 28, the accounts for the three months ending June showed—"Labour cost, merchant's bills, &c., 271*l.* 0*s.* 9*d.*; balance against the adventurers, from last meeting, 186*l.* 8*s.* 2*d.*, making the total debit 531*l.* 9*s.* The credits were—Call made, May 29, 456*l.*; tin sold (less lord's dues), 200*l.* 2*s.* 5*d.*; total, 456*l.* 2*s.* 5*d.*, leaving a balance of 124*l.* 13*s.* 5*d.* in favour of the adventurers. The agent's report stated the adit and the 12 fathom level to be still opening good payable ground, the opening of which will enable them to meet cost for some time. The 24 fathom level will shortly be under the same rim of tin ground; should this prove equally good, the prospects of the mine will be more encouraging: 30 persons are employed."

At Treweathen Mine meeting, yesterday, the accounts showed a debit balance of 717*l.* 18*s.* A call of 5*s.* per share was made. The report in another column.

At the Erwefelin Lead Mining Company meeting, on Aug. 26, the accounts showed a balance in favour of the mine of 11*s.* 4*d.* Details will be found in another column.

At East Bassett and Grylls Mine meeting, on Aug. 27, it was reported that since the preliminary meeting, about two months since, much progress had been made in the works at surface and underground. The engine-shaft is completed to adit, in the kind of granite that never fails in producing tin in this district. The engine (a very good one) has been purchased and paid for, and will be at work in about ten weeks. A good bunch of tin, that can be worked at 10*s.* in 12 tribute, has been discovered, and altogether there is not a rising ground in the locality with more chequered prospects than East Bassett and Grylls. A call of 10*s.* per share was readily voted for carrying on the

works for the ensuing quarter, at the end of which there is little doubt about the agent being able to report good progress, and, perhaps, something better.

At New Hendra Mine meeting, on August 29, the accounts showed a credit balance of 271*l.* 18*s.* 4*d.* A call of 5*s.* per share was made. The salaries of the purser and agent for the future to be 2*s.* 3*d.* each per month. Captains R. King and S. Harris reported on the mine. They sold, on July 18, 20*s.* barrows of tin-stuff, realising 8*s.* 3*d.*, and have some more tin-stuff, and a small pile of copper ore, now on the floors.

At West Sharp Tor Mine meeting, on Thursday, the accounts for May, June, and July showed a cash balance of 255*l.* 7*s.* 11*d.* in favour of adventurers; and there are arrears of calls amounting to 120*l.*; but the merchants' bills for May, June, and July, amounting to 209*l.* 7*s.* 11*d.*, remain unpaid. A call of 5*s.* per share was made.

At the Great Wheal Busy meeting, on Thursday (Mr. J. Fielding in the chair), the accounts showed a debit balance of 181*l.* 11*s.* 3*d.* Details in another column.

At the Boscastle Mine meeting, on Tuesday (Mr. J. Fielding in the chair), the accounts showed a debit balance of 162*l.* 19*s.* 3*d.* Details in another column.

At the St. David's Gold Mine (first annual) meeting, on Monday, (Capt. Mandie in the chair), the accounts showed an available balance of 229*l.* 0*s.* The directors' report and balance-sheet were received and adopted. Details in another column.

At the Bantry Bay Slate and Slab Company (special) meeting, on Thursday (Major-General Mason in the chair), the special resolutions passed at the last meeting (which appeared in the Journal of Aug. 15) were unanimously confirmed.

At the Llanwit Vardre Colliery Company (first annual) meeting, on Wednesday (Lord Henry Gordon in the chair), the accounts showed a balance at the close of 190*l.* 1*s.* The bankers of 99*l.* 1*s.* 1*d.* There are 1235 shares not yet subscribed for. The report and accounts were received and adopted, and the retiring directors were re-elected, and Mr. Miles Seton was voted to a seat at the board. Details in another column.

At the Santa Barbara Gold Mine meeting, on Monday (Mr. Carne in the chair), the report of the directors and accounts (which appeared in last week's Journal) were received and adopted. Details in another column.

At the Fortune Copper Mining Company of Western Australia meeting, to be held on September 16, the accounts for the twelve months ending July 8, will show—capital received, 49,070*l.*; interest and transfer fees, 22*l.* 3*s.* 3*d.*; accounts charged contra but not paid, 47*l.* 9*s.* 9*d.* = 49,766*l.* 1*s.* 4*d.*—On account of purchase of mines, 80,500*l.*; mine cost, machinery, sending captain and miners to colony, preliminary expenses, &c., 11,869*l.* 2*s.* 6*d.*; leaving credit balance, 7397*l.* 10*s.* 10*d.* The directors report that on taking the property, 235 tons were handed over to the company, the cost to pay (1906*l.* 10*s.*) after realisation; of this, 134 tons were sold for 2456*l.* 9*s.* 6*d.* In addition to this, 150 tons have arrived per *Palestine*, and 130 tons by *Levante* is advised. There was also at *Champion Bay* a small quantity of copper ore on March 31, and about 200 tons of lead ore. The captain, sixteen miners, and the necessary machinery, left England in April last.

At the Santa Barbara Gold Mine meeting, on Monday (Mr. Carne in the chair), the report of the directors and accounts (which appeared in last week's Journal) were received and adopted. Details in another column.

At the Fortune Copper Mining Company of Western Australia meeting, to be held on September 16, the accounts for the twelve months ending July 8, will show—capital received, 49,070<i

In Chancery, Lancashire.

SCHIELE'S PATENTS—SCHUNCK v. SCHIELE.—Notice is hereby given, that by a deed dated July 14, 1863, executed pursuant to an order of this Court, and duly registered at the Patent Office, London, C. SCHIELE A BSOLUTELY ASSIGNED to MARTIN SCHUNCK, Esq., the PATENTS, comprising the following inventions:—

SCHIELE'S TURBINE WATER WHEELS, PLATT AND SCHIELE'S SILENT FANS, including AIR PUMPS or GAS EXHAUSTERS, SCHIELE'S GOVERNORS for STEAM ENGINES and WATER WHEELS, SCHIELE'S VENTILATING ENGINES, SCHIELE'S CENTRIFUGAL PUMPS, SCHIELE'S TURBINE STEAM ENGINES.

SCHIELE'S FEED PUMPS, SCHIELE'S VARIABLE EXPANSION GEAR, SCHIELE'S LUBRICATION.

SCHIELE'S HYDRAULIC TRANSMISSION of POWER, SCHIELE'S HYDRO EXTRACTORS, SCHIELE'S CONTACT GEAR, SCHIELE'S CONTINUOUS WHEEL CUTTING MACHINERY, SCHIELE'S NUT TAPPING MACHINES, SCHIELE'S OSCILLATION BREAK for GOVERNORS for RAILWAY TRAINS, &c.

SCHIELE'S CONTINUOUS SCREW CUTTING MACHINES, SCHIELE'S APPLICATION of the ANTI-FRICTION CURVE to FOOTSTEPS of SHAFTS, to COCKS, VALVES, &c.

SCHIELE'S HYDRAULIC WEIGHING MACHINES.

Mr. SCHIELE is not authorised, either by himself, or his partners or agents, to receive any orders, or transact any business, relating to the above. All applications for terms of license, &c., of inventions not already exclusively licensed, to be made to WILLIAM RADFORD, Esq., civil engineer, John Dalton-street, Manchester; or to the NORTH MOOR FOUNDRY COMPANY, Oldham, who are authorised to treat, on behalf of Mr. SCHUNCK, for the same.

LEWIS, DARBISHIRE, AND ASHWORTH, 21, Brown-street, Manchester, Solicitors for Martin Schunck, Esq.

August 24, 1863.

Manchester, Solicitors for Martin Schunck, Esq.

THE NORTH MOOR FOUNDRY COMPANY, OLDHAM
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NOTICES TO CORRESPONDENTS.

* * * Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be regularly *uled* on receipt: it then forms an accumulating useful work of reference.

SOUTH FRANCES AND WEST BASSET.—In answer to the query of "One Interested," I beg to inform him the boundary dispute between South Wheal Frances and West Wheal Frances may be settled immediately, upon the withdrawal by South Wheal Frances of their opposition to the verdict given in favour of West Basset. The solicitors have had the case for argument, in the Court of Error, in their hands ever since January last, and are not yet agreed upon it. As was foretold by the West Basset committee, in 1857, the South Frances lease will have expired (May 17, 1861) before the termination of these useless law proceedings.—**ANOTHER INTERESTED.**

OLD WHEAL NEPTUNE.—Will anyone connected with this company have the goodness to inform me who are now the directors of the company, and in what way the mine is now carried on? There having been no meeting of shareholders since three of the directors left the board, and I am informed there is little or nothing doing on the mine.—**A SHAREHOLDER.**

MINING IN AUSTRALIA.—In answer to your correspondent in last week's Journal, "A Constant Reader," respecting the Daly, the Welcome, and other mines in South Australia, I beg to say that I shall be happy to give him every information about them.—**ALFRED P. BURTT: Jerusalem Coffee-house, Cornhill.**

MINING IN IRELAND.—Mr. J. H. Hitchins, whose name is so well known to the readers of the *MINING JOURNAL* as the consulting mining engineer of the Devon Great Consols, is now on a mining tour in Ireland. During his stay, Mr. Hitchins will be prepared to consult with capitalists with reference to their mining properties in that country, or to inspect such sets as may be deemed worthy of exploration. This may be considered a desirable opportunity, as Mr. Hitchins has been the introducer of many highly successful adventures.

PATENT ANCHORS.—**J. H. S.** (Glasgow).—The works at which Martin's patent anchors are manufactured are at Old Charlton, adjoining Woolwich Dockyard.

PORT PHILLIP AND COLONIAL GOLD MINING COMPANY.—**"Your Reader"** will find, upon referring to the Journal of Aug. 1, that the half-yearly meeting of this company was held on July 27, and that a distribution of 1s. per share was made out of the profits of the current year, on account of the sixth dividend (free of income tax), 10 per cent. thereto being added to the reserve fund.

WHEAL JANE (Kee).—Perhaps some one concerned will explain how the profits on the two months ending June can be made 500, 19s. 8d. As I read Mr. Edsall's accounts, the mine cost is only charged for May and June, while the returns include the sales of ore up to August 19. A little present explanation may prevent future dissatisfaction.

GREAT MOELWYN SLATE QUARRY COMPANY.—**"A Shareholder"** refers to the absence of reports from the Great Moelwyn Quarry, and angus ill therefrom. If a shareholder, he must know there can be but little to report periodically, as from the statement at the last meeting, in March (for which see the account in the Journal), it was promised that in about two months the whole affair would be in good working order, and I presume that there is no reason to doubt such is now the case. In accordance with the resolution of the shareholders, in March last, they will, of course, be summoned together during the present month, when they may reasonably expect to have every information. From some little experience, I have not much faith in weekly reports, such as are generally published, and if the shareholders are satisfied that the concern is genuine an official intimation once in three or six months should be sufficient. The only disadvantage is a difficulty in finding a market for shares of the quarry, if not kept prominently before the public—hence such an advertisement as appeared last week from a broker, in reference to the Great Moelwyn, "An Offer Wanted." This, if genuine, will soon meet with a response. It is bad management on the part of the directors that the quarry is not on the Stock Exchange List: there is not a reason to the contrary.—**A SHAREHOLDER.**

CORESPONDENCE.—We are compelled, by pressure on our space, to defer the publication of the letters of "A Doggy," in reply to Mr. Robert Ridley; "Lax Obscura," in reply to Mr. H. Brook; "Mentor," on Mining as an Investment; "F. R." on the New System of Geology; and some other matters, until next week.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, SEPTEMBER 5, 1863.

Since our publication of the Mineral Returns, in last week's Journal, with which we were furnished by Mr. ROBERT HUNT, that gentleman has received the following additional returns, which, he informs us, will increase the total quantity of IRON ORE by about 4000 tons; DEVONSHIRE (Sharkham Point, &c.), 6486 tons; IRELAND (Ballycastle), 7600 tons.

From the same source we receive the following returns of our Mining Population, as furnished to the Keeper of Mining Records from the office of the Registrar-General:—

CORNWALL

| | |
|------------------------------|--------|
| Copper Miners | 13,494 |
| Tin | 13,839 |
| Lead | 1,721 |
| Iron | 228 |
| Miners returned indefinitely | 1,654 |

Total miners in Cornwall 30,966

| | |
|----------------------------------|--------|
| COAL MINERS IN ENGLAND AND WALES | |
| Cornwall | 36,639 |
| Northumberland | 12,611 |
| Cumberland | 4,274 |
| Yorkshire | 31,938 |
| Derbyshire | 10,672 |
| Nottinghamshire | 6,791 |
| Leicestershire | 2,455 |
| Warwickshire | 1,888 |
| Staffordshire | 33,203 |
| Worcestershire | 2,631 |
| Lancashire | 41,764 |
| Cheshire | 2,813 |
| Shropshire | 4,490 |
| Gloucestershire | 2,639 |
| Somersetshire | 5,890 |
| Devonshire | 32 |
| North Wales | 6,063 |
| South Wales | 29,292 |
| Cornwall | 4 |

Coal Miners Returned indefinitely 356

| | |
|-----------------|-------|
| Northumbrian | 58 |
| Cumberland | 97 |
| Yorkshire | 84 |
| Derbyshire | 170 |
| Nottinghamshire | — |
| Leicestershire | 13 |
| Warwickshire | 71 |
| Staffordshire | 260 |
| Worcestershire | 223 |
| Lancashire | 77 |
| Cheshire | 6 |
| Shropshire | 996 |
| Gloucestershire | 129 |
| Somersetshire | 18 |
| Devonshire | 721 |
| North Wales | 490 |
| South Wales | 1,866 |

Coal Miners Returned indefinitely 356

| | |
|--------------|-----|
| Northumbrian | 58 |
| Cumberland | 97 |
| Yorkshire | 84 |
| Derbyshire | 170 |
| | |

trial of them in France. Capt. Harrison, one of the members of the Iron-plate Committee, was present during the firing, as were also the respective representatives of the Millwall Company and Messrs. John Brown and Co.

CANNOCK CHASE, AND ITS COAL MINES—No. III.

BY WILLIAM MOLYNEUX.

The system of keeping a weekly statement of the production and disposal of the coal at the Beaudesert Collieries appears to have originated with William, I think, fifth Lord Paget, at the close of the 17th century. From these statements a thorough knowledge is obtained of the whole system of mining, the value of the mineral obtained, and the wages paid for getting it. I will select two, at intervals of about seventy years, as examples. In the month of August, 1749, George Booth was the bailiff of the colliery, and the value of the coal raised during the previous year was 1025*l.* 11*s.* 2*d.*, the cost for getting being 628*l.* 1*s.* 3*d.* It is somewhat singular that the quantity raised in the week ending Jan. 21 should be the lowest during the year, its value being but 12*l.* 1*s.* against 8*l.* 9*s.* 9*d.* expenses. The highest rate was for the week ending Oct. 15, when the value was 37*l.* 6*s.* 8*d.*, against 18*l.* 14*s.* 10*d.* In only one instance, Jan. 14, did the cost, 27*l.* 13*s.*, exceed the value, which reached but 13*l.* 10*s.* "Coal remaining on the banksman's hands," and unsold, was 93*l.* 17*s.* 8*d.* And, after deducting all expenses, there remained a profit of 35*l.* 7*s.* 11*d.* The miners at this time worked in pairs, and the wages of each pair for a week of six days were 10*s.* "Soughing" was a constant source of expense, and carried on principally by a man and boy. Boring appears also to have been often resorted to, but the instruments for the purpose were by no means available for extensive undertakings. Sinking a pit in the Old Park was charged at the rate of 4*s.* per yard.

The year ending June 30, 1804, shows a considerable increase in the value of the coal raised here, but the profit does not rise in proportion. The total amount brought to the surface was of the value of 4763*l.* 3*s.* 10*d.*, the cost of getting 4045*l.* 19*s.* 9*d.*, leaving a profit of but 717*l.* 4*s.* 0*d.* In this year ten pits were in work during the winter months, and seven during the summer, all of which would appear to be named after the chartermasters working them. The greatest amount of coal raised was in the week ending Dec. 10, 1803, valued at 121*l.* 16*s.*, against 63*l.* 11*s.* 6*d.*; and the lowest 22*l.* 10*s.*, against 12*l.* 18*s.* 4*d.*, for the week ending July 23. There are several items showing a considerable loss in the week, thus—July 30, coals got 33*l.* 15*s.*, cost of getting 42*l.* 17*s.* 3*d.*; Jan. 14, 1804, coals got 75*l.* 12*s.*, cost of getting 145*l.* 7*s.* 3*d.*; but in numerous instances the cost scarcely amounted to one-half the value. Against the receipts comes a long list of tradesmen's accounts, carriage of timber, repairing of roads, and other matters, and for every year over the interval included various sums, or "allowances," to probably decayed or maimed miners, Christmas boxes, and "surplus of coals distributed to the poor." In the year 1784 the item for this purpose, "by her ladyship's order," being 45*l.* 18*s.* 1*d.* The cost of Cannel raised for this year's consumption was 115*l.* 14*s.* 0*d.*, at which sum it was valued. In the year 1800 the coals brought to the bank amounted to only 895*l.* 7*s.* 7*d.*, the cost of which involved a deficiency of 58*l.* 2*s.* It appears the two coals worked were sold at the rate of 4*s.* and 5*s.* per dozen baskets, or horse loads—the quantity drawn up by man or horse at one time, and which, if we may judge according to a similar mode of working still in force in the Churnet Valley, and the wild gullies near Axedge, would be each a little over 1*cwt.* At this rate the quantity raised in 1749 would slightly exceed 5148, and that in 1804, 16,459 dozen loads, reckoning at 4*s.* per dozen. After the year 1810 these collieries gradually died out, and in 1816 were entirely closed. That a considerable quantity of the shallow coal of the whole area has been mined is clear enough, but none of the deeper coals have as yet been touched, and much of the shallow, including the Cannel, remains to be worked. After the closing of the Beaudesert pits, a Mr. Turner opened Hazelstade Colliery, between the Old Park and Hedgesford, but in 1824 this was abandoned, since which time until the present no effort has been made to re-open the ancient and valuable mines of this particular district.

There does not appear to be any reason to suppose that the ironstone anciently smelted in this locality was obtained wholly on the spot. Several bands of ore intersect the clod of the upper beds of coal, and some might there be found good enough for the purpose required; but the greater or more valuable part would be brought from a distance in bags or baskets, attached to the backs of horses—pack-horses then superseding other ordinary modes of conveyance. One of the stones then wrought appears to have been the "Silver Thread," from the Walsall district, and a somewhat inferior ore from Cheslin Hay. Coal was not then much used in smelting, but the process depended chiefly upon charcoal, of which the Chase afforded an abundant supply. Where wood abounded the smelter prepared his works, it being a more expeditious and reasonable system to bring the raw mineral to the wood, than the wood to the mineral; and it is to this circumstance that numerous indications of such operations are to be met with far beyond the limits of coal fields.

According to various writers of the 16th, 17th, and 18th centuries, it appears that long before that period iron was made in what were termed foot-blasts, or bloomeries, by men treading the bellows, by which process they could produce about 1*cwt.* of metal during 24 hours, leaving as much iron in the slag as they got out. The means employed in preparing the ore for the bloomery in the 17th century were simple. It was placed on the open ground, and calcined with wood and charcoal, or occasionally coal. This was called annealing, and generally occupied three days. While this was being done, considerable quantities of charcoal were burnt upon the furnace without blast, to season, or bring it to the necessary heat, on which the calcined ore was taken in baskets, and thrown in—one of ore to one of charcoal. These furnaces were carefully built, the hearth being square, the sides descending obliquely, and narrowing towards the bottom, like the hopper of a mill. Where these oblique walls terminated, which are termed boshes, four other stoves, set perpendicularly, were joined, which formed the square or hearth in which the ore was received. They had curious names for these four walls—the tuarn, the windwall, the timp, and the back wall; and according to the manner in which they were built, so they supposed was the quality and value of the iron regulated. The bellows usually had their entrance into the furnace between the bottom of the boshes and the bottom stove, and were placed nearer or further off, according as the ore and metal required. The bellows were worked by a wheel, kept in motion by a stream of water; and under the furnace were made, in parallel lines to the stream, five or six soughs, to drain away the moisture from the furnace, "for should," says the writer, "the least drop of water come into the metal it would blow up the furnace, and the metall would fly about the workmen's ears, from which sough they must have a conical pipe, about 9 inches at bottom, set to convey the damp from them into the open air, which, too, otherwise would annoy the workmen even to death."

The bellows were large and powerful, and arranged in pairs, a constant and strong blast being kept up by the alternate depression of each by the action of the wheel. In three days the metal became somewhat fluid, but it was not till the end of a fortnight that a "sow and pigs," as they were termed, could be run, and the process subsequently repeated once in twelve hours. The sow was the larger furrow, made next the timp, in the sand placed before the furnace, and the pigs were smaller, generally 24 in number, but regulated in size and number, according to the quantity of metal to be run. Before the metal was quite cold it was broken, which only in that condition could easily be done, into short lengths for the forge. From 2 to 3 tons of cast-iron could then be obtained in the 24 hours, which was considered a remarkable achievement, in comparison to the more ancient system of men-worked bloomeries.

The forges were of two kinds—the finery and the chafery, which generally stood together under the same roof, and were worked by bellows compressed in the same way as those of the furnace, but not so large. In these forges the metal was subjected to five several heats, or processes, before being perfectly wrought into bars. In the finery it was melted down to what was termed a loop, or thick lump, which was then taken to the "great hammer," raised also by the motion of a water-wheel, and worked into a square, called a "half bloom." It was then replaced in the finery for an hour, and again brought to the same hammer, to be worked into a "bloom"—a "square barr" in the middle, and two square knobs at the ends, the smaller end being called the ancony and the greater the mocket head." This terminated the work of the finery. The bloom was then taken to the chafery, the ancony end first heated for a quarter of an hour, then taken to the hammer, and beaten into a bar, and the process repeated with the mocket head, which being larger required two heats before being wrought into the shape and size considered proper for market. The iron intended for rods was then taken to the slitting mills, an invention of the middle of the 17th century, and broken cold into short lengths by one of the wheels, also worked by water. After this it was well heated in a furnace, drawn by rollers to a greater length,

and then put through the cutters, which were of various sizes, and bound into faggots for sale. Four kinds of iron were manufactured by this process; the first and meanest was called yellow shear, the second cold shear, the third blend metal, and the last and best tough iron; the particular kinds of ore used giving the quality.

Both furnace and forge were then at work in various parts of the Chase, besides the Old Park and Radmore. In a valley, watered by a remarkably pure stream of water, running up from Rugeley to Hedgesford, were several of these works, the site of one of which, pulled down in 1805, is now occupied by the plating mills owned by Messrs. Cheshire, Manners, and Co. The first of these stood close to the Furnace pool, at Hedgesford; lower down was Beyland's pool furnace, then Kankwood pool, followed by the Slitting Mill pool; and at all these places are quantities of cinders, probably thousands of tons, most of which may be advantageously used in the manufacture of particular kinds of iron. Some of the old dilapidated works are still remembered, and appear to have been built of brick, on stone foundations. At what period these works were erected, and the time of their disuse, are now unknown; they were at full work, at least, during the greater part of the 17th century, and, probably, only gave way in consequence of the introduction of coal into the manufacture of iron in the neighbourhood of Wednesbury, where the stone and coal were ready for use side by side.

REPORT FROM NORTHUMBERLAND AND DURHAM.

SEPT. 3.—The Coal Trade remains as last reported: we have no new feature to notice. The Iron Trade continues good, with an upward tendency, and as the season advances the coal trade is expected to improve also. The wheat harvest has been much obstructed, and the very valuable crops endangered by heavy falls of rain, with dull, damp, misty weather. The use of reaping-machines, worked by horses, is almost universal in this district: their performance is highly spoken of, the work being done much better, as well as cheaper, by this mode than by hand labour; and in one instance, near Carlisle, the wheat was cut, threshed on the spot, and taken to the mill, made into bread, and dispatched by rail, in the form of a box biscuits—all these processes being completed in about nine hours.

A share in the valuable steam coal colliery of Seaton Delaval will shortly be offered for sale. This colliery is one of the most valuable in Northumberland, the produce being known as "Hastings' Hartley:" it is situated in the centre of the district, being seven miles from the Northumberland Dock, on the River Tyne, and two miles from the Port of Blyth, with both of which shipping places it is connected by railway. The amount of the share to be offered for sale is one-seventh.

The new rolling-mills at Jarrow have been in full operation this week, and some of the largest plates of iron have been rolled ever attempted. On Tuesday, two were rolled of immense size, the length of one being 50 feet 10 in. by 2 feet 6 in. $\times \frac{1}{4}$ in. Another measured 48 feet in length, and of similar breadth and thickness. These are believed to be the greatest lengths ever accomplished in the history of iron making. The quality of the iron is also good, being made on the spot, of the best Cleveland iron ore, with an admixture of hematite from the Cumberland iron mines.

The meeting of the British Association in Newcastle continues to attract very great interest and attention. The subjects introduced at the various sections by the reading of papers, and the discussions thereon are of considerable value, some of them possessing a local interest, as connected with the coal and iron trades. Among the questions introduced into the address of Sir William Armstrong, those possessing most local interest are those which refer to the duration of the coal field, and the economic use of coal. Respecting the former question, various opinions will be formed, but as bearing upon this question the paper of Mr. Dunn, read before the Geological section, on Saturday, "On Coal in the Red Measures," is deserving of close attention. The President evidently assumes that the extent of all the important coal fields in Great Britain have been ascertained, but this will prove fallacious to suppose that the extent of the coal fields of Britain and the Continent have been discovered with any degree of accuracy is absurd. New coal fields, of great extent, will continue to be found as geological knowledge progresses; many instances of this kind might be adduced from the history of coal discovery, the majority of cases certainly having been, when discovered, merely continuations of coal fields formerly well known, but supposed to be terminated by some disturbance or change in the stratification.

In this case the appearance of the Red Sandstone measures, against which the coal appeared to terminate at Maryport, was supposed to be the final termination of this valuable coal field in that direction; no doubt whatever was expressed on this point until lately. A paper was read by Mr. Dunn before the Mining Institute some time ago on this subject. In this paper the author advocated the view that the Whitehaven and Maryport coal field would be found to extend underneath those Red measures to the north and east, and would thus ultimately be found to be identical with the coal field of Cannobie, thus adding a large area, containing an immense amount of coal, in addition to the fields already fully proved. Mr. Dunn supported his view by various evidence collected from bore-holes, quarries, &c., which he had collected; one very significant hint being that traces of coal are found on the mountain ridges of Kirkcudbright, on the opposite side of the Solway Firth. Since that paper was written additional explorations have been made at the Ellenborough Colliery, at Maryport, and at Aspatnia, in the range of the Red measures to the north-east, which have thrown much additional light on the subject; and this appears to support the opinion that ultimately a large tract of coal will be found underlying these Red Sandstone measures, the extent of which cannot be determined; but, should this prove correct, and the bottom of the coal basin prove to occur near Silloth, as conjectured by Mr. Dunn, a coal field of several miles in extent from north to south, and also about the same extent from east to west, containing several good seams of coal, will be found a circumstance of the greatest consequence, not only to the commerce of Cumberland, but also to that of Britain generally.

With respect to the economic use of coal in the working of steam-engines, and for various other purposes, including domestic consumption, so particularly alluded to by the President, its importance is only second to that of the duration of the coal beds. With respect to the use of coal by steam-engines and furnaces of various kinds for manufacturing purposes, the paper of Mr. Siemens has a direct bearing on this important question. That great improvements will shortly be effected in this respect, and also in the consumption of smoke, cannot be doubted.

The objects aimed at by Mr. Siemens, and which he has already achieved, to a great extent, are of the most valuable and comprehensive character. These may be classed as follows:—1. Saving of fuel; 2. Consumption of smoke; 3. Increased production of iron in the smelting processes. The importance of the objects aimed at may be inferred from the fact (as stated by him) that by means of the application of his regenerator, a complicated system which cannot be described here, a saving of fuel is effected of 50 per cent., while smoke is entirely prevented. It appears also from his paper that when the coke ovens are placed near blast furnaces, several most economical and admirable arrangements can be made. The separation of the coke from its gaseous constituents is effected without losing the latter, and the puddling of the iron is effected by means of the gas generated in producing the coke necessary for the blast furnace in producing the pig-iron. The gas resulting from the regenerative coke oven may be used to heat the blast and boilers connected with the blast furnace. These latter improvements are now in course of being carried into effect on a large scale. In the application to re-heating and puddling furnaces, a saving of iron has been effected, owing to the mildness of the gas flame, of from 3 to 4 per cent. of the entire quantity put in; the iron also welds more perfectly than it does in the ordinary furnaces. Smoke is entirely obviated.

The gas engine of Mr. Lefebre, of Paris, stands in the annex of the Exhibition—that is, in the Corn Market—where it has been daily worked, being used for the purpose of driving a printing machine. It is a small horizontal engine, having the appearance externally of an ordinary high-pressure steam-engine, but, as is well known, the motive-power employed is not steam, but carbureted hydrogen—gas after explosion. The ordinary street gas is supplied to the cylinder by means of a pipe, and to produce each stroke of the engine the gas is exploded by means of a battery placed contiguous to the engine. The expansive force of the gas after being exploded being the motive-power; as this gas expands to 12 times its original bulk after explosion, this is the measure of the force obtained, and, of course, this cannot be exceeded. This is the maximum power that can be obtained by this process. The engine works well and regularly, but the economic value of it is rather difficult to obtain on the spot, as there is no means of ascertaining the quantity of gas consumed. This might easily have been got by means of a meter placed at the branch. The working of the battery will also constitute part of the working cost of the engine.

It is certainly a most ingenious machine, and appears to be successfully applied for the purpose of printing machines and other small affairs. One recommendation of it will, therefore, be that it can be used in situations where the erection of a steam-engine would be objectionable. It occupies little space, and is very compact. But comparing it with the steam-engine, for general practical purposes, it will certainly not stand the test for a moment. So far as we can learn, the working cost of this engine, as compared with the steam-engine, is as from 2 to 1 to 2*½* to 1, or, in other words, its cost per horse-power per hour is from 2 to 2*½* times greater than that of the steam-engine. Should this prove correct, it is a fact of the most injurious kind against the otherwise very ingeniously constructed machine. However, had it been possible to get exact data on the spot, it would have been more satisfactory to the public; but the inventor, or some of his assistants, are to blame for this omission.

The paper of Mr. Marley, "On the Discovery of Rock Salt at Midlesbrough," read before the Geological section yesterday, excited much interest. The discovery is one of the greatest importance to the district, and will, doubtless, cause the erection of numerous chemical works on the Tees, as rock salt is the mineral most largely used in the making of alkali, &c. The salt was met with in a large bore-hole, undertaken for the purpose of getting a supply of water—the depth to the top of the rock bed being 1206 feet, and the borer has passed through 100 ft. of salt rock, but has not reached the bottom of the bed. Of course, no idea can be formed as yet as to the area or extent of this most extraordinary and valuable deposit; but there is little doubt it will prove of immense extent.

In connection with this subject it should be remembered that a very rich salt spring exists at Birtley, near Chester-le-Street. This spring was met with at a fault in the coal measures, at a depth of about 120 feet (we cannot give the exact depth). It contains a large quantity of salt, and salt works were established here, and successfully carried on for many years, but during the last few years they have been dormant, having been relinquished through some whim of the owner, who was not dependent upon them for support. Salt of excellent quality was made from this spring, which is very abundant, the water being first pumped to the surface, and afterwards the salt deposited in iron vessels.

A paper was read yesterday, the joint production of Dr. Richardson and Mr. T. W. Bunning, "On the Uses of Fuel in Marine Boilers." The account given by these gentlemen of the experiments conducted by them, in order to ascertain the qualities of the Hartley and Welsh steam coals, exhibits their real qualities in a clearer manner than has ever been accomplished previously, and also in a manner which proves most conclusively the suitability of the Hartley steam coal for use in the British Navy, or by any other navy or steam navigation company, in at least equal proportions to the Welsh coal. These gentlemen were appointed to be present at certain experiments made with Hartley and Welsh coal; and to represent the different intensities of the smoke produced, it was found that while the Hartley made 3*½* marks, and the Welsh 4*½*, an equal mixture of the Hartley and the Welsh made only 1*½*.

These experiments, therefore, dispose of one part of the question in the most satisfactory manner—that is the smoke question; and the other question as to the quantity of steam evaporated is very plainly settled by the following:—Since the experiments alluded to above Mr. Bunning has received a letter from the chief engineer of the *Prince Napoleon* yacht, belonging to Prince Jerome, in which that gentleman states that for ordinary running they used a mixture of one of Hartley and two of Welsh coal; if they wished to go at a greater speed they used half Hartley and half Welsh, and when they wanted to go at their greatest speed they used Hartley entirely. After this we shall surely hear no more about the superiority of Welsh coal, as the above trials must be considered the most important that could possibly be found.

The sectional meetings of the British Association were brought to a close yesterday. The meeting, on the whole, is allowed to have been one of the most successful ever held, a vast amount of interesting matter having been presented in the form of papers, &c., much having been furnished by local gentlemen and manufacturers, which will hereafter prove of great value in all operations similar to those referred to.

The most remarkable object in the Central Exchange is the working model of Mr. Hawthorn, the eminent engine builder of Newcastle, representing and fully elucidating his proposed new mode of Railway Traction. Respecting the merits of this invention, and its probable success or otherwise, there are, of course, various opinions; but respecting the ingenuity displayed, and the perfection of workmanship shown in the construction of the model, there can only be one opinion. The idea here worked out is most ingenious and beautiful, and that it will prove useful, either in its present shape or after some slight modification, and, in fact, fit the place for which it is intended in the railway system, we have no doubt whatever. That the working of the locomotive-engine in tunnels, such as that occurring in the underground railway in London, lately completed, is highly objectionable, and all but impracticable, is fully acknowledged; at any rate, great inconvenience is felt from the effects of the steam, smoke, &c., the products of the locomotive-engine employed. The adoption of Mr. Hawthorn's invention will entirely obviate this, as the steam power employed is a stationary engine placed at the end of the tunnel. This power is continued throughout the whole length of the tunnel by means of ropes, and a very ingenious application of sheaves. The rope and sheaves being carried between the two lines of road, and attached to these sheaves are shafts which extend to each of the roads, on which are the wheels, which, by an ingenious arrangement, become the driving wheels of the train or carriage, for each carriage is provided with the means of locomotion. By the arrangement of the ropes in a diagonal form on the sheaves, every alternate sheave has a reverse motion—that is, No. 1 sheave moves in one direction, No. 2 sheave moves in the contrary direction, and so on. This enables the carriage, or train composed of a number of carriages, to be moved either up or down the line as required; this is accomplished by means of two levers or flat-bearing surfaces, placed underneath each carriage. In addition to the pulleys having contrary motions, they are not placed in a line, but each alternate pulley forms a line; and, as there are two levers or bearing surfaces on each carriage, each of them can be placed in contact with either of the lines of pulleys required, and by this means the train or carriage is propelled in any direction.

Thus the lever and pulley form the working bearings, and are the mode of traction adopted. This mode of traction may be compared to the friction-wheels adopted by a Glasgow engineer (we forget his name), instead of toothed-wheels, and which answer the purpose admirably, so that there can be no question as to that point. And it must be remembered that the weight which, in the case of the use of the locomotive, is mainly thrown on one point—that is, on the point where the engine and tender is at any given time, is in this case equally, or nearly so, distributed over the whole length of the train, each carriage being propelled by the application of the apparatus we have described. It must be noticed, also, that the guard who accompanies each carriage (which are intended to be of great length, and to carry from 120 to 150 passengers) has complete control of it; so that a carriage or train, by the combined action of each guard, can be propelled forward, or brought to a stand, at any point at will. There can be no doubt, also, that by this mode of traction heavier gradients may be worked than can be ascended by means of the locomotive. Such are the leading features of the ingenious invention, which can, however, be best understood by an inspection of the excellent working model to be seen in the Central Exchange Exhibition in Newcastle. The design of the inventor is that it should be adopted for use in tunnels, or underground railways, where the locomotive is objectionable; but its real utility, and the extent to which it can be applied, of course, only be determined by practical experiment.

In consequence of the breakage of the shaft gear of the Burraon Colliery, on Monday, about 200 miners were in danger of being confined in the pit without any early means of escape. Under the guidance of some of the more experienced colliers, the party sought a passage to the shaft of Seghill Colliery, which is about three miles distant; and, though constantly exposed to danger from disturbing stoppings, &c., they steadily made their way from where, if they had been obliged to stay longer, they must have run a much greater chance of losing their lives. The men persevered amidst difficulties, and, with good guidance, had got through half the distance between Burraon and their destination, where they were met by Mr. Kendall, viewer, of Seghill, with a party. Their way thenceforward was rid of the most serious obstacles, and they reached Seghill without one of the number having sustained any injury.

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the price of iron in wages than has been the case for some time past. It is hoped that iron may go up at least 10s. a ton more, and the marked houses now decline new contracts at the present rates, which are an advance of 10s. per ton.

Pig-iron is quoted from 5s. to 7s. 6d. per ton higher than it was a fortnight ago, and actual orders are at 5s. advance. The trade is in a peculiar state, and the course of the demand for the next few months will be anxiously watched, with a view to see whether the advanced rates, and the further rise hoped for, can be secured.

The unsettled state of the wages question has led to meetings of the men in different parts of South Staffordshire, and the opportunity has been seized by delegates to impress on them the importance of banding into unions. Mr. Farrell, who is connected with a paper which desires to represent the working miners, and a Mr. Hickman, have addressed meetings, urging combination. The advance of wages will probably do much to check this movement. There is naturally great distrust of these unions, for the unwise courses to which they have so often urged the men; but if they could exist for any practical object locally, as for making provision against accidents, sickness, or old age, or of better enforcing the provisions of the Mines Inspection Act, they might do good, by awakening reflection, and developing self-denial amongst miners. A threatened strike of spike nailers at Sedgley, for an advance of 3d. per cwt., has been averted by the masters granting the advance.

At a recent Petty Sessions at Wellington, charges were brought against several chartermasters under the Lilleshall Company for employing women at certain pits, contrary to Act of Parliament. The informations were laid by Abraham Roper, but failed, owing to some technical informality. A man named Bailey, residing at Rag-field (summoned at the last meeting), was on Tuesday charged with a similar offence. Mr. Bartlett, of Wolverhampton, supported the information, and Mr. Smallwood defended. Abraham Roper was then called, and deposed that on a certain day he visited the defendant's pit, and saw two girls at the mouth of the shaft performing the duties of a banksman. They hooked on "doubles," and gave the signal to the engineman, and men were directly afterwards drawn up. A man named Taylor corroborated Roper's statement. Mr. Bartlett then proceeded to call Mr. Jones, mining agent to the company, to prove that the defendant was chartermaster of the pit, but he refused to answer any questions until he had been paid the sum of 5s. Mr. Bartlett said that the idea of paying this sum was preposterous; Mr. Jones evidently wished to throw an obstacle in the way of the law, and he thought it very wrong for him to do so. After some further conversation, witness agreed to give evidence without remuneration, and, in reply to questions, he swore distinctly that defendant was not chartermaster of the pit in question, and the case was, therefore, dismissed, the Bench ordering Roper to pay the cost incurred, and 1s. for the advocate's fee.

REPORT FROM DERBYSHIRE, YORKSHIRE, AND LANCASHIRE.

SEPT. 3.—The most noticeable feature in connection with the Iron Trade in these counties, this week, is the special meeting of ironmasters called to consider the question of wages. Notices having been given by the puddlers and those engaged in the manufacture of finished iron in Staffordshire, and several parts of Yorkshire, for an advance in wages, it was deemed expedient for the employers of labour to take some decisive step in the matter. It was unanimously agreed to give the ironstone getters 3d. per day, and the colliers 6d. per day advance. The orders for manufactured iron this week have been far more numerous than of late, but there is an entire absence of speculative purchases. During the past week several large orders have been given out for railway ironwork. Sheffield has also fallen in for a large supply of railway springs, and, at those establishments in Yorkshire where the rails are mostly made, there is great activity evidenced for rails and railway rolling-stock. Pig-iron is in better demand, and the rates have been more steady during the week than for some time past. The Coal Trade is on the improve, notwithstanding the generally depressed state of the manufacturing districts. In Yorkshire the trade has been gradually improving, and the demand for export has so far increased as to afford sanguine hopes of a better state of things for the winter months. The London and southern markets have been more healthy than usual at this period of the year; and, although we have had a dull trade, the demand has been such as to afford much encouragement for the future. At most of the collieries in Yorkshire and Derbyshire the men have been put on full time, and there is a better prospect of an improved trade than at any recent period. We have also a brisk enquiry for coke and hard coal for locomotive purposes. The Derbyshire hard coal is now in great request in those districts in which steam coal is used, and we have now a largely increased demand for the same.

The great feature of the week in lead mining matters has not been the discovery of a fresh vein of ore, from which great things were anticipated, but the sale of the plant of the North Derbyshire Mining Company, embracing everything workable or portable at the mine. There was a large attendance, and the biddings were spirited. The large Cornish pumping-engine, which cost 20000. some time ago, was knocked down for 10000. to Mr. Fairburn, the secretary; of course, it was understood to have been bought in at that figure. The other portions of the plant sold very well, and it was remarked that the old shareholders would get a larger dividend on the winding-up of the affair than was anticipated.

The local stock and share markets have been inanimate during the week, and the quoted prices for all stocks, except a few railway shares, have been purely nominal.

The Gresley Wood and Swadlincote Colliery Company held their preliminary meeting on Saturday, the object being to see that the requisite amount of capital for authorising the formation of the company had been subscribed. Messrs. Alex. Hankey, T. Cox, T. W. Hodges, T. B. Forman, J. V. Smedley, J. H. Mackenzie, W. B. Church, C. F. Smith, W. Gledow, and W. Robinson were present, and took part in the proceedings. It having been reported that nearly 40,000l. had been subscribed, the settlement of the articles was proceeded with, and working operations will be at once commenced.

The applications for Letters Patent include—Mr. John Shaw, of the Junction Implement Works, New Wortley, for improvements in machines for cutting or reducing turnips or other roots as food for animals; Mr. E. Vickers, of Sheffield, steel manufacturer, for improvements in the manufacture of steel; Mr. Joseph Walls, of Farington, engineer, for improvements in steam-boilers, and in apparatus connected therewith; Mr. Geo. Lowry, of the Stanley Steel-Works, machine maker, for improvements in and applicable to cotton gins; Messrs. William Whitworth and Joseph Wrigley, or Lowerby Bridge, for improvements in or applicable to the furnaces of steam-boilers.

REPORT FROM MONMOUTH AND SOUTH WALES.

SEPT. 3.—The ironworks of the district are moderately well employed, and makers have a good number of orders on the books. The orders on American account are on the increase, and several cargoes have lately been shipped from both Cardiff and Newport for New York. The resolution of the South Staffordshire ironmasters to advance the price of finished iron 10s. per ton, has had a considerable effect on the trade of this district, and a proportionate rise has been the result in Welsh bars and rails. Bars are now quoted 6s. to 6s. 5s. f.o.b.; and I understand that buyers have, in more than one instance, actually given 6s. 2s. 6d. Taking one view of the matter, this fact shows that the trade is decidedly improving, and there is no doubt but that it is improving, and that substantially so, to a certain extent; but I hear grave doubts expressed as to the continuance of the present favourable prospects. After the South Staffordshire works have been going for a few weeks, then it will be seen whether quotations will be so firmly held, and whether the orders will be sufficient to keep all the works fairly employed.

I perceive that at a meeting held at Wolverhampton, on Wednesday, it was determined to advance the wages of all the men employed at the iron-works, in proportion to the puddlers' advance, and a rise was also agreed to as regards the coal getters. The ironmasters of South Wales have not had this difficulty to contend with as yet, and the relations between masters and men are of the most amicable character. It is quite clear, however, that the puddlers and others employed about the ironworks will follow the example of their brethren in Staffordshire, in so far as to ask for an advance. In taking this step no one can find fault with them; but if, after meeting their employers, and discussing the question, and it is clearly shown that a rise cannot reasonably be granted, they should resort to a strike, then their conduct will be such that deserves to be condemned. Whatever will take place, it is to be hoped that reasonable arguments will have their due weight on both sides, and that the men will not allow their feelings to dominate over their common sense.

There is a large business doing in steam coal, and the demand for house

coal shows a slight improvement. Quotations remain without alteration. The Brecon and Merthyr Tydfil Junction Railway half-yearly meeting was held on Friday, at the offices, Bridge-street, Westminster, Mr. R. K. Penson in the chair. The directors' report stated that the line had been opened from Dowlais to Brecon, and the earnings fully realised the expectations entertained. The old Rumney Railway, from Rumney to Newport, would soon be vested in this company's undertaking. The bill promoted by the company for sanctioning certain deviations had become law, and the connection with the Taff Vale and Vale of Neath was being rapidly proceeded with. An act had also been passed enabling the company to make a junction with the Vale of Neath, and an arrangement for the use of that company's station at Merthyr was confirmed. The arrangements by which this company had running powers over the entire system of the Mid-Wales had been confirmed by Parliament. The acquisition of the old Rumney line was of the greatest importance, as it gave them direct access to the port of Newport, and opened a through route to the Bristol Channel. The passing of the Neath and Brecon Junction Acts would alike advance the interest of the company. A dividend at the rate of 5 per cent. per annum was recommended, and unanimously agreed to. The capital account showed that 298,886l. had been received, and 298,822l. expended, leaving a balance of 64l. to the credit of the company.

The Vale of Towy half-yearly meeting was held at Llandover, on Friday, Mr. D. Jones, M.P., in the chair. The directors' report stated that the affairs of the company were in a satisfactory state, and it was expected that a good dividend would be declared on the ordinary shares at the next half-yearly meeting. The report was unanimously adopted. The directors of the Penarth Harbour, Dock, and Railway Company have just issued their report for the half year ending June 30. It shows a balance of 5472l. on the revenue account, and of 3601l. on capital account. A dividend at the rate of 2½ per cent. per annum, has been declared, after providing for the interest on the preference shares.

I referred last week to the exertions that were being made to devise some means of increasing the trade of Newport, and it is satisfactory to announce that several large capitalists are about to make proposals for the purchase of the Dock Company's property. Unless the latter will be disposed to sell for a reasonable sum, application is to be made in the next session for powers to construct a dock near the mouth of the Ebbw. This project is strongly supported by the Tredegar interest, and all the surrounding property belongs to the Tredegar family. In another six months the through communication with the Aberdare valley will be opened for both passenger and mineral traffic, and there is no doubt but that a large increase of trade will follow, and if proper facilities will be afforded to shippers, Newport will soon regain her lost position. The old Rumney line has at last passed from the hands of its stand-still proprietary, and in a short time it will form part of the Brecon and Merthyr system. An energetic effort is to be made to induce the Rhymney Iron Company to bring their traffic over the line again, and return to Newport, where they formerly shipped all their coal and iron.

The *Swansea and Glamorgan Herald* states that arrangements are in progress to increase the floating accommodation at the rising port of Llanelli. Every branch of trade has lately so expanded and increased, that there is hardly sufficient accommodation for the shipping that visit the port. Evidently Llanelli is destined to become the centre of a large trade, and this is due in a great measure to the spirited capitalists that have invested their money in the various works of the neighbourhood, and more especially to the efforts of the Llanelli Railway and Dock Company.

Another case of infringement of colliery rules was brought before the Merthyr magistrates, on Monday, the defendant being a collier, named David Evan Davies, employed at the Plymouth Collieries, and he was charged with blasting a hole inside the lamp-station, without permission from either the fireman or overman. The case was proved, and Davies was fined in the mitigated penalty of 20s., or seven days' imprisonment, and it appears that he chose the latter alternative.

The applications for Letters Patent include—Mr. Arthur Agnew, of Welshpool, gun maker, for improvements in breech-loading fire-arms; and Mr. Martyn John Roberts, of Pendarron House, near Crickhowell, for improvements in the arrangement or fitting of axles for railway and other carriages.

FOREIGN MINING AND METALLURGY.

Complaints are made of many difficulties which impede the progress of industrial affairs on the Continent, as matters are at present managed, and as compared with England. If a Belgian merchant attempts an operation in the export trade he meets with a cluster of delays and embarrassments. The different products are scattered—iron and coal in the provinces of Hainaut and Liège, cloth at Verviers, linen and cotton goods in Flanders, while he may not find at Antwerp a ship ready to put to sea. If Belgium possessed a business centre at which could be found capitalists, brokers, shipowners, captains, &c., great advantages would result to Belgian industry. If it be objected that Belgium is a country of large extent, might not the object be attained by the establishment of two distinct centres—Antwerp for maritime affairs, and a town in the interior for metallurgical affairs? It is necessary that this second centre should be suitably selected, and for various reasons it is considered that Brussels presents the most advantages. It is necessary that the town chosen should not be at too great a distance from the different centres of production, and not too far from the port of exportation; it must also have some importance as a city, for the more considerable the number of its inhabitants the more easy will transactions become. Various provinces radiate around Brussels, which satisfies all these conditions, and, as almost all Belgian affairs are transacted at this centre, it acquires every day more and more importance. It is suggested that to attain greater simplicity and facility in the iron trade, at any rate, a metallurgical Bourse should be created at Brussels, and the idea seems likely to find favour.

As regards the course which the Belgian iron markets have taken since reference was last made to them under this head, it may be observed that prices have not varied, but that a rise is every day anticipated in iron. As a general rule, the tone of the market is good, and great activity prevails in the various works. Not content with the powerful means of production which they already possess, several industries of the provinces of Hainaut and Liège are devoting attention to the construction of additional blast-furnaces, rolling-works, &c. The Belgian *Moniteur* publishes a treaty of commerce just concluded between Belgium and the kingdom of Sweden and Norway. By the terms of this treaty, the Customs' duties levied on the entrance into Belgium of Swedish pig-iron and steel will be as follows, on and after Oct. 1, 1864:—Rough pig and old iron 10s. Instead of 1s. 3d. per cwt., beaten, stretched, or rolled iron, 2s. 6d. instead of 2s. 4d. per 2 cwt.; nails, 5s. per 2 cwt., as previously; worked pig, 3s. 4d. instead of 3s. per 2 cwt.; worked iron, including screws, 5s. instead of 7s. 6d. per 2 cwt.; worked or unworked, 8s. per 2 cwt., as before; worked or unworked steel, 6s. instead of 7s. 6d. per 2 cwt. We have hinted above that extensions of works are the order of the day in Belgium, and it may be interesting to go a little further into detail on the subject. Rolling works for the production of plates, commenced some months ago by MM. Gustave Dumont and Co., of Châtelainne, are now entirely completed, and it is understood, on good authority that they were put in working in the course of the past week. In the course of the present month (September) a rolling works owned by the Châtelainne Blast-Furnaces and Rolling Works Company is to be put in operation. This establishment will be devoted to the production of rails, plates, and merchants' iron, and will be one of the most considerable works in the district. The rolling-works for plates of MM. Victor Gilliéau and Co., of Marche-en-Famenne, are also in full course of construction, and the works of MM. de Dorlodot Frères display great activity. On the whole, a considerable amount of work is being carried out by the various industrials engaged in the Belgian iron trade, but it is stated that the profits are not proportionate. The Couillet Company is now constructing as well for the East Belgian Railway as for the State lines, and for Spain a score of locomotives, at extremely low rates. The encouraging anticipations indicated in previous impressions with regard to the Belgian coal trade begin to be realised. A considerable quantity of orders have come to hand, but boats on the canals are still rather scarce, a circumstance which has, of course, checked deliveries.

At St. Dizier iron continues in good demand, and the works are provided with orders, but hitherto prices have not risen. Rolled iron, 9s. 4s.; hammered iron, 11s.; axles, 11s. 16s. per ton. Pig, for refining makes 52. per ton. The Rouen forges offer iron stated to be made from wood-produced pig at 8s. for No. 2, and 9s. for No. 3, while No. 4 stands at 12s. per ton. The trams of Champagne are quoted at 9s. 8s. per ton, delivered at Rouen. A letter from Havre, referring to the great orders of the Government in Staffordshire, the continued suspension of work among the "hands," and the determination of the forge-masters of the district to ask 7s. per ton, states that these terms, added to freight and accessory expense, make up a charge of 8s. per ton at Havre, without payment of dues. A rise took place in warrants last week at Havre. A letter from Rouen expresses astonishment that French iron should remain stationary after the rise which iron had experienced in England. The writer says:—"The prices of iron in England, which have risen during the last few months, continue to be very firm. Thus good marks from Wales, the quality of which corresponds with that of the coke-produced iron of the north of France and the Moselle, are now worth 6s. 5s. per ton, free on board in England. In consequence, the cost price of these irons in the ports of France is 7s. 1s. 6d. per ton, these irons cost 9s. 17s. 6d. per ton on the coast, and 10s. 6s. 6d. per ton at Paris. Coke-produced French iron could be sold at 9s. 12s. per ton at Havre, and 10s. 4s. per ton at Paris, without having to fear English competition. It is true that English iron may be received at a cheaper rate by the aid of warrants; but French forge-masters should never be influenced in establishing their prices by importations made by means of warrants; for, whatever they may do, they can never modify the quantity of iron introduced, which will always be the amount of worked iron actually exported from England to France. All reductions made with the view of checking importations are a false manoeuvre, which only has the effect of causing the price of warrants to fall, without in any way changing the quantities imported. Regard should only be had to foreign products, with the Customs' duties added; and, therefore, I repeat that French coke-made iron could be carried without danger from English competition to 10s. per ton for Paris, and 9s. 12s. per ton for the ports on the western coast line of the empire." To this it is rejoined, that the notable amelioration which has appeared in England has not been without influence—as the writer supposes—on the French markets; on the contrary, it has stopped the fall in the price of French iron, and brought back some firmness to prices; but, at the same time, it is contended that the French producers have acted wisely in not following step by step, their competitors across the Channel in the path traced out by them during the past six weeks or two months. The rise in England, although very de-

cided, is not, perhaps, sufficiently justified by circumstances to be durable; it arises especially from an accidental cause, which on its soon disappearing will considerably affect the stability of prices. If it is true that numerous orders of merchants' iron and rails have reached the Welsh works, it is also the fact that the stoppage of the Staffordshire forges has greatly contributed to such a state of affairs, the idleness of the puddlers in that district having brought nearly 250 furnaces to a standstill. It would be desirable, from a French ironmaster's point of view, that the rise reported in England should be seriously maintained, because the French works would be favourably influenced by it; but it is prudent, nevertheless, for the French iron trade to wait awhile, until the English situation becomes more clearly defined. By this means French firms would if they make any advance be able to do so with sureness and certainty, and would not have to fear a precipitate return to original rates. Warrants, it is further urged, weigh more heavily on the sale of irons than the writer of the Rouen letter imagines, and have brought the price of Welsh iron down to 8s. per ton in the ports of the Channel. English classification, larger when compared with French classification, constitutes a difference in price of about 6s. 3d. per ton, English iron quoted at 8s. per ton, being reduced in reality to 7s. 13s. 9d., taking into account the differences between French and English classing. Moreover, it must not be forgotten that French ironmasters have even more redoubtable competitors than the English to deal with in their Belgian neighbours. Less favoured than the English, Belgian metallurgy, nevertheless, has reflected a sensible amelioration, and prices have gained firmness. Irons for working can, however, be easily obtained at 6s. 4s. for No. 1; and after adding transport expenses and Customs' duties, Belgian iron is available at Paris at 9s. 8s. per ton, while by means of warrants their price descends to 8s. 8s. per ton. Would it then, be possible to quote French coke-made iron at 10s. per ton at Paris? The wood-produced irons of Châlons only make only 9s. 12s. to 9s. 16s. per ton at the Villette depot.

In consequence of the feebleness in the English market for copper, prices have been sustained with difficulty at Paris, although they have not varied. English has made 96s.; Lake Superior, 108s.; and Chilian, 91s. per ton. At Havre, affairs, which have long remained inactive, have been distinguished this week by the sale of 34 tons of Lake Superior, Minnesota mark, at 107s. per ton, showing a sensible fall. The article has, however, been generally held more firmly on the German markets. At Hamburg few purchases have been made, but attention is directed to this metal, and it is expected that on the first impulse prices will display an upward tendency. At Berlin affairs have presented little activity, but holders display full confidence. Some sales to meet the requirements of consumption have been effected at Cologne at previously quoted rates. Since our last report no favourable change has occurred in tin. At Amsterdam and Rotterdam the market is, nevertheless, a little firmer, and 73s. 16s. has been offered in vain. The fall which has taken place in English tin has necessarily exerted some influence at Paris, where Banco has been quoted 131s. to 132s.; Detroit, 127s.; and English 117s. to 118s. per ton. Berlin and Cologne have remained without change. At Hamburg tin is neglected, and prices remain in favour of purchasers. Lead enjoys a little more demand, but notwithstanding this, prices have not changed, and do not display any upward tendency. Paris has been quiet, rough French making 21s. 14s. to 21s. 16s., and Spanish 22s. per ton. Scarcely any business is reported at Marseilles; the last quotations were, lead in saumons first fusion, 19s. 2s.; ditto second fusion, 18s. 1s.; argentiferous, 19s.; shot, 21s. 4s.; and rolled, 21s. 4s. per ton. At Hamburg there has been some demand, but at lower rates; the stocks collected are unimportant. At Cologne and Berlin prices have been sustained; at the former centre various small transactions have taken place. Numerous transactions have been concluded in zinc, and the demand continues good, at slightly rising prices. At Paris rough Silesian has risen from 19s. 8s. to 19s. 16s. per ton, and rolled has been very firm at 24s. At Hamburg the demand has been very good, and the stock collected, which is comparatively small, is much sought after. The Breslau market is also very firm, and good marks find an easy outlet. With reference to the Cravino nickel mines, alluded to last week, it should be stated that the Liège nickel works, which have furnished almost the whole of the nickel used in the manufacture of the new Belgian money, have drawn for the last seven years all their supplies of minerals from the nickel mines of Varallo, in Piedmont.

The Belgian Minister of Finance has just published an official statement, illustrating the movement of Belgian commerce during the first half of the current year. The general position of Belgian metallurgical industry appears from the data collected to indicate prosperity and progress. Thus the exportation of rails is much above the point attained in the corresponding period of 1862; and it may be hoped that this progressive movement will not experience a check, but that the important deliveries still required on foreign account will communicate new elements of activity to the various works. The total exportation amounts to 22,827 tons, showing an augmentation of 5,970 tons; the increase arises as regards the Low Countries, Spain, Italy, Switzerland, and the Roman States, while there has been a diminution in the movement towards Russia, France, and the Zollverein. A decided augmentation is noticed in the export of bars; Germany contributes to it to the extent of upwards of 250 tons. It has not been the same with regard to this, this explains, in part, the depressed condition in which many blast-furnaces now find themselves. The total diminution has been about 5000 tons, and it is remarked that the German market seems altogether lost. The importation of foreign pig into Belgium has assumed larger proportions; they attained a total to June 30 this year of 37,05 tons, and English figures in the total to the extent of about 2000 tons. The export and import of minerals from and into Belgium have increased in a very marked manner; thus during the first six months of 1863, 82,036 tons were received, against 53,487 tons in the corresponding period of 1862. The receipts were principally derived from Germany. As regards the exports of minerals, they amounted for the first six months of 1863 to 116,913 tons, against 106,753 tons in 1862. France alone having absorbed this year from Belgium 102,596 tons. The exports of Belgian coal during the first half of 1863, compare as follows with the corresponding six months of 1862:

| | 1863. | 1862. |
|--------------------------|-----------|-----------|
| To the Zollverein | 4,979 | 3,314 |
| Low Countries | 57,066 | 56,108 |
| France | 1,837,572 | 1,474,038 |
| Other destinations | 1,815 | 3,808 |
| Total | 1,701,422 | 1, |

it arises considerably from the Staffs. of the It would England probably interest awhile, such firms and would be urged, to imagines, the Chancery, consisting per ton, in French waters have an neighbourly reflected manner, however, and by means to quote from Chancery, prices varied, per ton, and distinction 1072, par were firmly mentioned is play an a display a range has a little in England quoted Cologne in fairs, prices per ton, rough business 191. 2s. 2d. 211. 4s. the stocks mentioned: at associations and prices, has been collected, also very old mines, have further money, and mines

SOME CONSIDERATIONS ON THE PROCESSES EMPLOYED IN REFINING IRON AND STEEL.

BY WILLIAM BAKER, ASSOCIATE OF THE ROYAL SCHOOL OF MINES, F.C.S.

This is emphatically the iron age, and the methods of elaborating this pre-eminently useful metal from its ores, and of preparing it for its manifold purposes, are so time-honoured, and have carried the manufacture to such a pitch of greatness, that it might be thought at first idle, if not presumptuous, to question their correctness, or to propose any alterations. Nevertheless, the successful production of large quantities has not unfrequently been accompanied by a sacrifice of quality. Quantity has been the cry of the day, and now that a demand for better quality is becoming more urgent it will be not unprofitable to review the processes employed for producing a pure iron, and to compare them with similar operations applied to other metals.

It must be premised that the term pure iron, or pure steel, applies to the two forms in which the metal is used—cast-iron, steel, and wrought-iron. Bar iron only, of the other elements which may exist in the metal, is not considered an impurity, as upon its presence in certain proportions depend the physical characters which determine to which of the above categories it belongs. When copper or lead is smelted from moderately rich ores in a blast-furnace, the operation is exactly similar to the smelting of iron. The carbon of the fuel combines with the oxygen of the metallic oxides, and the metal is eliminated or reduced, whilst such proportions of earthy bases and silicic acid are brought together as will make a fusible slag. At the moment of reduction, should there be certain elements present for which the metal has a strong affinity, they will be carried down with it, and the product will be more or less impure. But when copper is poured into an ingot from the furnace we know that it will be the best copper, if there is absolutely nothing but copper in the ingot. Similarly of lead; there is no combination of lead with any other element that can improve its character as lead for its uses in the arts. Both metals can be extended by rolling or hammering, and, according to their crystallisation, will possess a fibre when drawn out. It is otherwise with iron. A strong affinity for carbon, which in different proportions singularly modifies the physical characters of the metal, complicates the after processes of refining. The crude pig-iron then always contains carbon, and not only in various proportions, but also in two distinct conditions. At the first operation in copper smelting, besides the crude metal, a slag is obtained, poor enough to be thrown away. In smelting iron the slag is also rejected as worthless, but the crude product may be—1. White iron, in which the carbon is wholly chemically combined.—2. Grey iron, in which it is chiefly in the form of graphite.—3. Mottled iron, being a mixture of the two former varieties. The impurities which may be present in iron are chiefly sulphur, phosphorus, silicon, and manganese; more rarely traces of copper, lead, arsenic, nickel, zinc, and titanium. It is possible, by a judicious regulation of the charge, and by observing certain precautions, that some of these impurities may be slagged off in the first operation in the blast-furnace. A coal or coke as free as possible from sulphur should, of course, be used—yet, notwithstanding, sulphur is always found in the iron. Phosphorus, when contained in the ore as phosphoric acid, is, unfortunately, transferred almost entirely to the iron in the process of smelting. This has been very well proved by Dr. David Price and Mr. Nicholson. (Vide *Chem. Gazette*).

The hot-blast may be said generally to introduce more of these impurities than the cold-blast, which fact in itself illustrates the remark that, at this early stage in the production of the metal, something may be done towards improving its quality. There may, however, be no need to take the retrograde step of smelting only with cold-blast. The problem for the metallurgist is to take the crude pig-iron, smelted by the hot-blast, and eliminate its impurities.

The operation of refining crude copper is a roasting or oxidising process, and produces rich slags, which are utilised in the first smelting furnace, along with the ore. The crude metal has carried down with it arsenic, phosphorus, sulphur, lead, and antimony—not to mention some of the most common impurities. Now, as their united amount is small in comparison with the mass of copper, an oxidising process will eliminate them at the cost of a certain amount of copper. The impurities, therefore, are burned off, giving rise to rich oxides of metallic slags. In this case it so happens that, in the order of combustibility, copper burns last of all.

Impure lead is treated in a similar manner. From 8 to 10 tons are melted in a rectangular pan, about 8 in. deep; an oxidising flame plays over the surface of the metal, and the oxidised impurities are separated as rich dross, containing, of course, a great deal of lead; and the metal is purified. Lead, however, is not last in the order of affinity for oxygen at the temperature employed; for copper refuses to oxidise to any extent so long as it is in contact with lead, at least when the proportion is reduced to a certain quantity, which may be roughly stated at 20 ozs. per ton. When much copper is present, it forms combinations with antimony and sulphides of lead less fusible at the temperature employed than lead, and can then be partially separated by skimming off the dross; but copper alone with lead cannot be removed by an oxidising process; still, the chief impurities are oxidised, and give a rich slag, containing a considerable amount of the oxide of the metal to be refined.

If crude pig-iron be submitted to any oxidising process, many impurities would likewise be burned off, with a certain waste of the iron itself. But we are stayed here by the consideration that we should also burn off the carbon, perhaps before the impurities would be oxidised, and the nature of our charge would be essentially altered. Thus, if the metal contains no more than 0.6 per cent. of carbon, it is wrought-iron; with 0.65 per cent. to 2.3 per cent., it is steel; and with 2.3 per cent. to 5.75 per cent., it is cast-iron. These degrees are only valid, however, on the consideration that—1, every malleable iron hardening on quenching, and giving sparks, is steel; and, 2, that separation of graphite on slow cooling and non-malleability in the cold, are characteristic of cast-iron. Supposing, therefore, we desire to obtain a pure cast-iron, theoretically, we should submit it to an oxidising flame, and find some means of constantly supplying the carbon necessary for its constitution. This is, to some extent, accomplished in the *finery* furnace. Pig-iron is melted down with coke, under blast from six or eight tuyeres, inclined downwards to the hearth. As the metal melts, silicon is oxidised, and, in the form of silicic acid, combines with dioxide of iron, giving rise to a slag containing some of the impurities. Pig-iron is most free from silicon; and some phosphorus, sulphur, and little carbon, may be removed in this operation. The product is always white iron, and breaks with a radiating crystalline fracture. The *finery* furnace in this country is chiefly used as a preliminary step to the operation of puddling. In the puddling-furnace we come to the true roasting or oxidising process, although its object is not to refine the metal, but to convert it into wrought-iron by eliminating its carbon. Finery iron has no direct application in the arts. Price and Nicholson have patented its use for mixture with bar-iron to produce a steel, and with pig-iron for casting ordnance, much stress being laid upon its freedom from silicon.

The puddling process is conducted in a reverberating furnace. The metal, either pig-iron or *finery* metal, is melted down with the addition of *finery* slags, or red oxide of iron, which yield oxygen to the metal. As the impurities burn off, and the carbon also is consumed, the metal gradually assumes a pasty consistency, and is brought together in lumps or balls by the workman manipulating with an iron crook. From this point the process cannot be looked upon as a satisfactory refining operation. From the moment the metal loses its fluidity, it is difficult to see how foreign bodies can extricate themselves from the spongy mass, for fluidity is essential to the separation of unlike particles of matter. As it is, the balls are kneaded with great effort, as well as skill, the result being a mass of iron dripping with slag; which, however treated—by the steam-hammer, the squeezer, or the rolls—must always contain minute portions of slag, which tend to destroy the continuity of its texture. The theory of the puddling process is simple: an oxidising flame plays over the charge, the action being assisted by the cinder which covers the melted metal; and the carbon, sulphur, phosphorus, and silicon, become oxidised by the united action of the oxygen of the air and that afforded by the fluid cinder. Which may be roughly stated to be generally a tri-basic silicate of iron. With any other metal these slags would be re-worked for the metal they contain; which is, however, done to a very limited extent with iron, as metal made from cinder is reputed bad in quality. We are happily circumstanced in having an abundance of iron ore; but were it not so, necessity would have surely found out a method of producing a fair quality of metal from these slags, which, for richness, may compare with some of the best iron ores. In the puddling process the cinder is a real chemical agent; for it will be

seen, that from the time when the pigs have melted down and become covered with the fluid slag, the oxygen of the air passing through the furnace cannot act directly on the iron, but is transferred by the agency of the oxides of iron in the cinder. The carbon in the iron reduces the higher oxides in the slag; and the reduced oxide, by the boiling movement caused by the evolution of carbonic oxide gas, comes to the surface to take up again oxygen from the air. A much more powerful chemical agent has been employed by Mr. Charles Sanderson, who proposes to use sulphate of iron as an oxidising and purifying agent in the puddling process. The substance is one which readily furnishes nascent oxygen, and only chemists can appreciate the vastly more intense energy of nascent than free oxygen. I am inclined to think that, properly applied, this plan would be very successful. Working upon another metal, I have met with an exactly similar case, which it is worth while to adduce in illustration. Thus, when lead is alloyed with antimony to the extent of about 2 per cent. of the latter, and where a certain amount of sulphur is present, it differs remarkably from pure lead in its behaviour when it is melted and exposed to the air. Its surface is smooth as a mirror, and it may be rabbled or splashed about without undergoing much oxidation; whilst, under similar conditions, pure lead rapidly oxidises and becomes covered with a dross of litharge. Upon presenting any substance that will liberate nascent oxygen at the temperature of melted lead, the sulphur and antimony are immediately attacked and oxidised. It is quite possible that combinations of iron with phosphorus and sulphur, which resist the action of the air, would be readily attacked by nascent oxygen; so that when refining processes are essentially oxidising processes, it is worthy of consideration whether they might not be assisted by chemical agents yielding nascent oxygen at the temperature

The desirability of a mechanical puddler has long been felt by the iron-masters, and the strike now existing in Staffordshire has again brought the question prominently before the public. Two plans may be mentioned as offering the most promising improvements on the present method. One may be shortly described as a cylindrical-furnace bed, which is rotated whilst the flame passes through, causing a sort of churning of the iron in its bath of melted cinder. The other plan, lately described in the *Mining and Smelting Magazine*, is an adaptation of levers to the tool at present used by the puddlers, whereby the same work is done in an easier manner. When machinery takes the place of manual labour, the systems of apparatus between the moving power and the work to be done are seldom alike in aspect. We might look in vain for a resemblance to the stocking-knitters' needles in the elaborate mechanism of the power looms. I am inclined to look upon Bessemer's process as the mechanical puddler of the present day, for in that process we have the power of burning off the carbon and pouring out molten wrought-iron. This is in the same direction as the puddling process, but goes a step beyond. In the Bessemer process oxidation may be carried on until all the carbon is removed, whilst all the time the metal is kept in a fluid state, so that here are all the conditions most favourable to the removal of impurities. If the foreign elements present can be burned (if they have any affinity for oxygen), surely the streams of air passing through the fluid metal, agitating and causing every particle to come into contact with oxygen, will eliminate them along with the carbon. But what does the experience of the steel manufacturers teach us on this point? If the purest steel is required to make articles of fine cutlery, and the Bessemer process produced a pure steel, we might expect to find a few, at least, of the Sheffield manufacturers actually using this process. But, on the contrary, its adoption for the purposes indicated seems very slow.

This practical result accords with what has been shown by chemical investigation. It has been found that of the impurities commonly present in iron, one, especially objectionable—phosphorus—is not removed; that is to say, phosphide of iron melts and dissolves in the molten iron, and appears to be unoxidised in contact with air at the high temperature employed.

We must reserve, however, any final opinions on this matter until more experiments have been made. It must be recollected that the nature of the process limits the time of purification: whilst the combustion of the carbon, and a portion of the iron itself, maintain it in a state of complete fluidity, it is possible that by continuing the action for a longer time, phosphide of iron might be removed. A Bessemer apparatus is not easily fitted up in a chemist's laboratory for experiments, although very many important facts have yet to be learned by its means. Amongst others—whether a neutral blast (that is, one not oxidising in its action) could not be obtained by a mixture of gas and air. By such means the metal might be kept melted, if necessary, a longer time without injury to its quality. It is also extremely probable that a better way of putting in the dose of carbon might be discovered; for after all, however good the Spiegelisen may be which is employed, it is a crude form of the metal. Again, if carbon in some form could be supplied to keep up the temperature longer than the time necessary to burn off the carbon contained in the pig-iron, advantage might safely be taken of more powerful oxidising agents along with the blast.

As regards the regular cementation process for making steel, we find no special methods of obtaining any purification between the bar-iron and cast-steel. In the cementation cases, it is obvious none but gaseous substances could be eliminated. It is not unlikely that such deleterious elements as phosphorus and sulphur might be got rid of in that form, if the iron were treated with a current of hydrogen. It is quite possible that we

may arrive in practice to a cementation in a gaseous current. When blister steel is broken up, assayed according to its temper, and melted, there is yet a slight chance of a refining action. Many have been the nostrums recommended for melting with steel, but only those can be of any use which make a readily fusible slag with the silica and oxide of iron eliminated on melting. The manganese ore (pyrolusite) in common use answers this purpose extremely well. When the steel has once been well melted, no good can be gained by allowing it to remain in the pot; what the manganese has to do, is accomplished, and there is no movement of the steel to bring up from the bottom any particles of impurities to be oxidised.

If crude pig-iron be submitted to any oxidising process, many impurities would likewise be burned off, with a certain waste of the iron itself. But we are stayed here by the consideration that we should also burn off the carbon, perhaps before the impurities would be oxidised, and the nature of our charge would be essentially altered. Thus, if the metal contains no more than 0.6 per cent. of carbon, it is wrought-iron; with 0.65 per cent. to 2.3 per cent., it is steel; and with 2.3 per cent. to 5.75 per cent., it is cast-iron. These degrees are only valid, however, on the consideration that—1, every malleable iron hardening on quenching, and giving sparks, is steel; and, 2, that separation of graphite on slow cooling and non-malleability in the cold, are characteristic of cast-iron. Supposing, therefore, we desire to obtain a pure cast-iron, theoretically, we should submit it to an oxidising flame, and find some means of constantly supplying the carbon necessary for its constitution. This is, to some extent, accomplished in the *finery* furnace. Pig-iron is melted down with coke, under blast from six or eight tuyeres, inclined downwards to the hearth. As the metal melts, silicon is oxidised, and, in the form of silicic acid, combines with dioxide of iron, giving rise to a slag containing some of the impurities. Pig-iron is most free from silicon; and some phosphorus, sulphur, and little carbon, may be removed in this operation. The product is always white iron, and breaks with a radiating crystalline fracture. The *finery* furnace in this country is chiefly used as a preliminary step to the operation of puddling. In the puddling-furnace we come to the true roasting or oxidising process, although its object is not to refine the metal, but to convert it into wrought-iron by eliminating its carbon. Finery iron has no direct application in the arts. Price and Nicholson have patented its use for mixture with bar-iron to produce a steel, and with pig-iron for casting ordnance, much stress being laid upon its freedom from silicon.

The puddling process is conducted in a reverberating furnace. The metal, either pig-iron or *finery* metal, is melted down with the addition of *finery* slags, or red oxide of iron, which yield oxygen to the metal. As the impurities burn off, and the carbon also is consumed, the metal gradually assumes a pasty consistency, and is brought together in lumps or balls by the workman manipulating with an iron crook. From this point the process cannot be looked upon as a satisfactory refining operation. From the moment the metal loses its fluidity, it is difficult to see how foreign bodies can extricate themselves from the spongy mass, for fluidity is essential to the separation of unlike particles of matter. As it is, the balls are kneaded with great effort, as well as skill, the result being a mass of iron dripping with slag; which, however treated—by the steam-hammer, the squeezer, or the rolls—must always contain minute portions of slag, which tend to destroy the continuity of its texture. The theory of the puddling process is simple: an oxidising flame plays over the charge, the action being assisted by the cinder which covers the melted metal; and the carbon, sulphur, phosphorus, and silicon, become oxidised by the united action of the oxygen of the air and that afforded by the fluid cinder. Which may be roughly stated to be generally a tri-basic silicate of iron. With any other metal these slags would be re-worked for the metal they contain; which is, however, done to a very limited extent with iron, as metal made from cinder is reputed bad in quality. We are happily circumstanced in having an abundance of iron ore; but were it not so, necessity would have surely found out a method of producing a fair quality of metal from these slags, which, for richness, may compare with some of the best iron ores. In the puddling process the cinder is a real chemical agent; for it will be

seen, that from the time when the pigs have melted down and become covered with the fluid slag, the oxygen of the air passing through the furnace cannot act directly on the iron, but is transferred by the agency of the oxides of iron in the cinder. The carbon in the iron reduces the higher oxides in the slag; and the reduced oxide, by the boiling movement caused by the evolution of carbonic oxide gas, comes to the surface to take up again oxygen from the air. A much more powerful chemical agent has been employed by Mr. Charles Sanderson, who proposes to use sulphate of iron as an oxidising and purifying agent in the puddling process. The substance is one which readily furnishes nascent oxygen, and only chemists can appreciate the vastly more intense energy of nascent than free oxygen. I am inclined to think that, properly applied, this plan would be very successful. Working upon another metal, I have met with an exactly similar case, which it is worth while to adduce in illustration. Thus, when lead is alloyed with antimony to the extent of about 2 per cent. of the latter, and where a certain amount of sulphur is present, it differs remarkably from pure lead in its behaviour when it is melted and exposed to the air. Its surface is smooth as a mirror, and it may be rabbled or splashed about without undergoing much oxidation; whilst, under similar conditions, pure lead rapidly oxidises and becomes covered with a dross of litharge. Upon presenting any substance that will liberate nascent oxygen at the temperature of melted lead, the sulphur and antimony are immediately attacked and oxidised. It is quite possible that combinations of iron with phosphorus and sulphur, which resist the action of the air, would be readily attacked by nascent oxygen; so that when refining processes are essentially oxidising processes, it is worthy of consideration whether they might not be assisted by chemical agents yielding nascent oxygen at the temperature

ORIGINATOR OF THE MODERN RAILWAY SYSTEM—NO. V.

It may, perhaps, not be irrelevant here to mention that the late Mr. W. James possessed very extensive coal mines in Staffordshire, Warwickshire, and Derbyshire, as well as ironworks and limekilns, and was deeply interested in the Stratford-upon-Avon Canal and River Avon navigation, as far as Tewkesbury, and, having been subjected to very overbearing conduct by the Birmingham Canal Company, he obtained, about the year 1810, a long lease of an extensive tract of ground at Newhall Hill, situated very centrally in the town of Birmingham, the greater portion of which hill he removed, at a very great expense, and upon its site formed a series of wharves, which he connected by a short branch of canal, with the Birmingham and Fazeley Canal; his final ultimate object, however, being to run a main central railroad through a short tunnel under the remainder of the hill, and thence, through the very heart of the Staffordshire coal field to Wolverhampton, connecting it, in its progress, by means of a perfect network of short railways, with the adjacent towns of Dudley, Stourbridge, Wednesbury, Bilston, Walsall, &c., and all the principal collieries and ironworks of that district, with the view of breaking up the very powerful monopoly of the Birmingham Canal Company, with which he had been long at variance—a reduced drawing of which of railway is now in possession of his son, W. H. James, who himself made the copy some years afterwards. And in furtherance also of which object, and for opening new markets for the produce of his mines, and improving his canal and river property, he, in the next place, about the year 1813, projected what he designated the Central Union Railway, or Tramroad, to commence at Stratford-upon-Avon, passing through Moreton-in-Marsh, Chipping Norton, and Oxford, into and along the Stratford Canal, river, and railways before mentioned, of which, in 1820, he published engravings, showing their communication with the various coal fields, canals, and principal towns, and the metropolis. About this period Mr. James also projected a line of railway from the Gloucester Railway at Cheltenham, and from Shipton to the Wiltshire and Berks Canal, near Longcot, with the view of diverting the transit of heavy goods and minerals from their usual route, along the Birmingham, Warwick, and Oxford Canals, into and along the Stratford Canal, river, and railways before mentioned, of which, in 1820, he published engravings, showing their communication with the various coal fields, canals, and principal towns, and the metropolis. 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WEST WHEAL FRIENDSHIP COPPER MINING COMPANY (LIMITED). IN THE PARISHES OF BRENTOR AND TAVISTOCK, IN THE COUNTY OF DEVON. Incorporated by the Companies Act, 1862, by which the liability of the shareholders is limited to the actual amount of their shares. Capital £30,000, in 30,000 shares of £1 each. 5s. per share on application, 15s. per share on allotment. DIRECTORS.

GEORGE BASHFORD, Esq. (Messrs. G. Bashford and Co.), East India Chambers, Leadenhall-street, E.C. CHARLES FYFE, Esq., New-square, Lincoln's Inn, W.C. FRANCIS FORD, Esq., 9, Laurence Pountney-hill, E.C. JOHN LEONARD, Esq., Southampton, and St. Lawrence, Isle of Wight. GEORGE SHARER, Esq., 27, Leadenhall-street, E.C.

AUDITORS. Frederick Maynard, Esq., Bread-street, E.C. Samuel Lovelock, Esq., 7, Tokenhouse-yard, E.C.

SECRETARY. J. J. Piddish, Esq., 82, Cheapside, E.C.

BANKERS. Metropolitan and Provincial Bank, 25, Cornhill, E.C.

CONSULTING ENGINEER.

Josiah H. Hitchins, Esq., Consulting Mining Engineer to the Devon Great Consols Mining Company.

SECRETARY.—Mr. William S. Martin.

TEMPORARY OFFICES,—4, GREAT WINCHESTER STREET.

PROSPECTUS.

This valuable mine is situated in the parishes of Brentor and Tavistock, in the county of Devon, and almost adjoining the celebrated Wheal Friendship Mine, which has paid upwards of £360,000 in dividends.

It will be seen from the reports that the lodes in this mine are not only of unusual width, but in their geological construction exactly similar to those of the great mine just mentioned.

Notwithstanding the encouraging prospects which the extent of ground laid open had offered, the working of the mine was abandoned five or six years ago, consequent upon the funds that sprung into existence among the then adventurers, after an expenditure of upwards of £10,000.

In commencing operations upon new ground, it frequently occurs that a large sum is laid out, and discovered after a time to have been a fruitless expenditure; but, in the present instance, the outlay has proceeded to the extent of showing the valuable nature of the mine, the certainty of success, and of the shareholders soon being in possession of an excellent dividend-paying property.

The principal feature of the sett, as at present explored, consist of three lodes, referred to in the reports as the main north lode, the middle lode, and the great south gossan lode; and from their quick underlie, the junction of these two latter with the main lode may be expected at not much greater depth than the present engine-shaft, in the sinking of which a large sum of money was expended by the former adventurers.

It is proposed to erect immediately a steam-engine of 40 or 50-in. cylinder, to continue sinking the engine-shaft to the junction of the lodes, and by cross-cuts at the present depth of the engine-shaft to intersect the three lodes, which operations have been always considered indispensable for the development of the resources of the mine.

The properties and general characteristics of the lodes at the 33 and 43 fms. improved to such an extent, that when the junction of the three lodes just mentioned is reached, which can be done in about six months from the time of the erection of the engine, very productive returns may be confidently expected, although it is fully believed that at the 53 (the present depth of the engine-shaft) the lodes will prove highly remunerative.

The plant comprises on surface a 40-ft. water-wheel, available for stamping and drawing the ores, pumps, water-courses, carpenter's shop, smithy, office, &c.

The undertaking is divided into 30,000 shares of £1 each, representing a capital of £30,000, and arrangements having been made for the purchase of the lease, plant, &c., on the property, for £6000, £6000 in the shares of the company, and £1000 in cash (thus showing incontestably the high opinion entertained by the vendors of the mine), a working capital of £24,000 is thus left for all future operations, a sum deemed ample, if not in excess, for all wants and work that can be required to fully develop the valuable contents of the ground.

The mine is held on a lease for 21 years, at a royalty of 1-15th.

A careful perusal of Mr. Josiah Hitchins's report is earnestly invited, as also that of Capt. James Richards, in which are found embodied all the advantages possessed by this really most valuable property.

Prospects containing reports and maps, and forms of application for shares can be obtained from the solicitor or secretary at the company's offices.

FORM OF APPLICATION FOR SHARES.

(To be forwarded, with 5s. per share, to the company's bankers or to the secretary.) To the Directors of the West Wheal Friendship Copper Mining Company, Limited. GENTLEMEN.—Having paid into the hands of the sum of £1, being 5s. per share on shares in the above company, I request you will allot me that number of shares, and I hereby agree to become a member of the company, and to accept the same shares, or any less number which may be allotted to me; to pay the remaining 1s. per share on the shares allotted, and to sign the Articles of Association when required.

Name.....

Profession or business.....

Address.....

Dated the.....day of....., 1863.

THE NEW CONCORD SILVER, LEAD, AND COPPER MINING COMPANY (LIMITED).

Incorporated under the Companies Act, 1862.

Capital £30,000, in 10,000 shares of £3 each. Deposit on application 10s. per share, and payment on allotment £1.

BANKERS.—The City Bank, Threadneedle-street.

BROKER.—Alfred Bingham, Esq., 1, Coothall Chambers, E.C.

SECRETARY.—Mr. H. Brook.

OFFICES,—11, TOKENHOUSE YARD, LOTHBURY, E.C.

ABRIDGED PROSPECTUS.

This company proposes to purchase the freehold estate of Wonwood, near Tavistock, Devon, consisting of 100 acres, and including the valuable lead and copper mine known as Wheal Concord.

This mine was worked many years ago, and £24,000 worth of lead ore obtained from shallow levels, when it was stopped in consequence of litigation between the company and the freeholder. It is now being worked on a small scale very successfully.

A provisional contract has been made for the purchase of the entire freehold, with all its mineral, and the plant of the mine, for £16,000, of which the vendors receive £7000 in paid-up shares.

Samples of the ore can be seen at the office, 11, Tokenhouse-yard, and prospectuses, and forms of application for shares, with the surveyor's reports, may be obtained also of the bankers and broker of the company.

Should no allotment of shares be made, all deposits will be returned.

THE WEST POLBRENN TIN MINING COMPANY (LIMITED).

Incorporated under the Companies Act, 1862.

Capital £6000, in shares of £1 each.

Deposit on application 5s., and 5s. on allotment. No further calls to be made for twelve months.

DIRECTORS.

EDWARD W. BURLS, Esq., the Villas, Erith. H. L. PHILLIPS, Esq., 8, London-street, Fenchurch-street, London.

DAVID GRIMMETT, Esq., 2, King's-row, Walworth, London.

JOHN WARD, Esq. (firm of Ward Brothers), 68, Bartholemew-close, and Islington, London.

W. C. PAUL, Esq., 79, Queen's-road, Baywater, London.

BANKERS.—Robarts, Lubbock, and Co., 15, Lombard-street, London; Williams and Co., Miners' Bank, Truro, Cornwall.

SOLICITORS.—Messrs. Walter and Retyl, 2, Duke-street, Adelphi, London.

AUDITOR.—Charles Warwick, Esq., 25, Bucklersbury, London, E.C.

SECRETARY.—Mr. T. Cartwheel.

OFFICES,—12, BUCKLERSBURY, CITY.

This company is established to purchase and work a very valuable tin mine at St. Agnes, Cornwall, known as West Polbren.

Its geological position is first rate, being surrounded by the most productive mines of this celebrated district, and possessing 13 champion lodes of great richness and value.

The mine will be easily and very cheaply worked, sales of tin will be soon made, and no call will be required for 12 months.

The last sale of tin paid its cost, and it is fully expected that in a short period the mine will be giving very handsome profits.

The vendors of the property are so confident in the success of the mine, that they have sold their entire interest in it for £2000 paid-up shares. This is a very satisfactory arrangement, as they have expended a large sum of capital on the property, and made it nearly self-supporting.

A most valuable cross-course intersects all the lodes. The miners are now driving the level on May's lode towards it, and opening up rich and profitable tin ground, which is improving every week (see weekly report from the mine). In a short time the celebrated Dorcas lode will be cut, and it is believed will give immense returns.

The directors will cut this, and it is believed will give the greatest confidence. A considerable number of shares have been already subscribed, and immediate application is requested for the remainder.

Magnificent specimens of the ore may be seen at the office of the company, where prospectuses, plans, reports, and every information may be readily obtained.

THE WEST POLBRENN TIN MINING COMPANY (LIMITED).

Notice is hereby given, that the SHARE LIST of this company WILL CLOSE ON FRIDAY, the 11th September.

By order of the Board.

THOMAS CARTWHEEL, Sec.

JOHN GLEDHILL AND CO., MINE AGENTS AND SHAREBROKERS, MINING OFFICES, CORN EXCHANGE, LEEDS.

JAMES H. COCK, MINE SHAREBROKER AND DEALER, REDRUTH, CORNWALL.

J. H. Cock, having had 10 years' experience in the mining market, and being thoroughly acquainted with mines and their management, is in a position to advise or do business on the most advantageous terms. Cash or time bargains promptly attended to.

M. EDWARD BREWIS, STOCK AND SHAREBROKER, 49, GREY STREET, NEWCASTLE-ON-TYNE, TRANSACTS all BUSINESS in LOCAL RAILWAYS, GAS, WATER, and MINE SHARES, at the ordinary rate of commission. Bankers: Branch Bank of England.

INVESTMENT.—MR. THOMAS SPARGO, STOCK, SHARE, and MINING BROKER, Nos. 224 and 225, GRESHAM HOUSE, OLD BROAD STREET, E.C., publishes, every Wednesday, a GUIDE to BRITISH and FOREIGN MINING, and OTHER INVESTMENTS, which should be consulted by all capitalists. Post free on receipt of six stamps.

Royal School of Mines.

ROYAL SCHOOL OF MINES.

DIRECTOR.

SIR RODERICK IMPEY MURCHISON, K.C.B., F.R.S., &c. During the session 1862-63, which will commence on the 6th of October, the following COURSES of LECTURES and PRACTICAL DEMONSTRATIONS will be given:—

1.—CHEMISTRY By A. W. HOFMANN, LL.D., F.R.S., &c.

2.—METALLURGY By JOHN PERCY, M.A., F.R.S.

3.—NATURAL HISTORY By T. H. HUXLEY, F.R.S.

4.—MINERALOGY By WASHINGTON W. SMITH, M.A., F.R.S.

5.—MINING By ROBERT WILLIS, M.A., F.R.S.

6.—GEOLOGY By T. TYNDALL, F.R.S.

7.—APPLIED MECHANICS By ROBERT WILLIS, M.A., F.R.S.

8.—PHYSICS By ROBERT WILLIS, M.A., F.R.S.

Instruction in Mechanical Drawing, by Rev. J. HATHORN EDGAR, M.A.

The fee for students desirous of becoming associates is £20 in one sum, on entrance or two annual payments of £10, exclusive of the laboratories.

Pupils are received in the Royal College of Chemistry (the laboratory of the School), under the direction of Dr. Hofmann, and in the Metallurgical Laboratory, under the direction of Dr. Percy.

Tickets to separate course of lectures are issued at £3 and £4 each.

Officers in the Queen's service, Her Majesty's consuls, acting mining agents and managers, may obtain tickets at reduced prices.

Certified schoolmasters, pupil teachers, and others engaged in education, are also admitted to the lectures at reduced fees.

His Royal Highness the Prince of Wales has granted two scholarships, and several others have also been established.

For a prospectus and information, apply at the Museum of Practical Geology, Jermyn-street, London, S.W.

TECHNICAL LIBRARY.

ROYAL LIBRARY.

VALENCIA SLATE SLAB QUARRIES, COUNTY KERRY, IRELAND.

MESSRS. FULLER AND HORSEY are instructed to SELL, BY AUCTION, at the Auction Mart, London, on Wednesday, October 28, at Twelve, in One Lot (unless an acceptable offer be previously made by private contract), the EXTENSIVE QUARRIES and MILLS of the VALENCIA SLATE SLAB COMPANY, situate in the island of Valencia, County Kerry, Ireland. The works have been carried on by the present company for about 14 years, and a very large outlay has been made in opening the quarries, and in erecting the mills and the requisite machinery. The quarries are situate on the side of a mountain, about 420 ft. above the sea level, and an opening has been made for working about 120 ft. wide, running into the mountain to about the same depth, uncovering a succession of platforms of slates of various widths. The slate rock lies most conveniently for working, at an angle of about 35°, and has a regular cleavage. The slates are severed by wedges instead of by blasting, thus avoiding the large amount of waste occasioned by the latter process. The roof of the quarry is self-sustained, and is perfectly secure.

The quality of the slabs is now well known and appreciated, and are taken in large quantities by the principal merchants in London and elsewhere. They take a beautiful and permanent polish, are particularly valuable for enamelling, and unaffected injuriously by furnace heat, and are raised in larger sizes than from any other quarry. The waste from the slab blocks is made into roofing slates, for which there is ample local demand.

The present yield is about 2000 tons of slate slabs annually, but by a comparatively small outlay in an extension of the workings this quantity may be doubled, the machinery at the mills being equal to prepare that quantity, and the demand at the present time being in excess of the capabilities of supply.

The mills are situate about 2½ miles from the quarries, are connected by a good road of easy descent, which is kept in repair principally at the expense of the county; but every facility would be afforded by the Knight of Kerry, who is the freeholder, for laying down a tramway by the side of the present road, which would much lessen the cost of transit. The mills are most advantageously placed, being immediately contiguous to the pier, at which vessels of 300 tons burden can load alongside, and there are no piers nor wharfage payable. The harbour of Valencia is both safe and commodious, and freight to London are about the same as from the North Wales ports.

The buildings are well arranged, and substantially erected. They are fitted with sawing and planing machinery of the best description, fitted by Blyth, of Limehouse; and there are overhead cranes, tramways, and every appliance for saving manual labour. There are also 10 dwelling houses, manager's residence, and about 35 acres of farm land.

There is a plentiful supply of water for the purposes of the mills from a large open reservoir. The quarries and works are held by lease from the Knight of Kerry on easy terms.

The present company have expended upwards of 40,000 upon the property. They have succeeded in establishing the reputation of, and a market for, the slabs, and have thoroughly proved the existence and uniform character of the slate, and the extent to which the workings may be carried; and they have supplied and fitted the most approved modern machinery for the preparation of the slate for market, and it is confidently believed that the works are now in that state that, in the hands of two or three individuals, very profitable results may be anticipated.

The works may be viewed by cards only, which, with further particulars, may be had of Messrs. PALMER, NEEDLESHIP, and ELAND, solicitors, 4, Trafalgar-square, W.C.; at the "Midland Counties Herald" Office, Birmingham; at the Gresham House, Sackville-street, Dublin; at the Railway Hotel, Killarney; at the Adelphi Hotel, Liverpool; at the Mart, London; and of Messrs. FULLER and HORSEY, 13, Billiter-street, London, W.C.

MESSRS. W. DERRY AND CO., MINING MATERIAL MERCHANTS, ST. AUSTELL, respectfully inform the mining public that they have constantly ON SALE EVERY DESCRIPTION of MINING PLANT, in STEAM ENGINES, pitwork, and dressing appliances, which they are prepared to offer on very advantageous terms, and such as will especially commend themselves to the projectors of new undertakings. Applications to be addressed as above, or to the engineer of the company, Mr. W. H. Gurney, St. Austell.

Dated St. Austell, August 12, 1863.

WILLIAM MATHEWS, ENGINEER, TAVISTOCK, has FOR SALE:—ONE 30 in. CORNISH PUMPING ENGINE, with BOILER 9 tons; ONE 14 in. HORIZONTAL WHIM ENGINE and cage, with BOILER 4½ tons; TWO 10 horse PORTABLE ENGINES, for winding or pumping; ONE CORNISH CRUSHER; ONE 30 ft. diameter WATER WHEEL, 9 ft. broad, iron axle, sockets and rings; 60 fms. of 3 in. flat-rods, with pulleys.

BLOWING ENGINES FOR SALE AT THE NITHSDALE IRONWORKS, NEAR CUMNOCK, BY PRIVATE BARGAIN.—TWO CONDENSING BLAST ENGINES, of the best construction, working expansively 150 horse power each, with FIVE BOILERS, erected a few years ago by Messrs. Murdoch, Atkin, and Co., of Glasgow, and which were used only during the short time the Nithsdale furnaces were in blast.

Also, an AIR VESSEL, 160 ft. in length, 6 ft. diameter, 14 in. plates; and 180 ft. length of SMOKE TUBE, 40 in. by 22, from heating stoves to blast engine chimney, 16 in. plates. All other appurtenances are complete, and the whole in good working order.

For further particulars, application may be made to ROBERT LUMSDEN, liquidator of the Western Bank of Scotland, Glasgow; BANNATYNE AND KIRKWOOD, writers, Glasgow; or HAMILTON Rose, writer, Cumnock, with any of whom offers may be lodged by intending purchasers within three weeks from this date.—August 21, 1863.

FOR SALE, a very EXCELLENT WATER WHEEL, 40 feet high and 8 feet wide, iron axle, sockets, saddles, and gun-metal bearings; three sets of iron segments, pumping crank, two balance-bobs. Never had much work.—Application to be made to Mr. THOS. KNIGHT, Gunnis Lake, near Tavistock.

FOR SALE, a NEW TURBINE WATER WHEEL, horizontal motion, 4 ft. in diameter. Also, a very fine strong IRON CRANE, and DOUBLE and SINGLE PURCHASE WINCH; 15 cwt. TRAVELLING WEIGHING MACHINE, together with a very large wrought-iron worm, and corn THRASHING MACHINE, for steam power, complete.—Apply to Messrs. BOND and Co., 6, Tabley-street, Liverpool.

FOR SALE, 14 in. FORCING PUMP, 14 in. LIFTING PUMP, HAND PUMPS, pumping crank, lifting screw, pit chain, and other colliery material.—Apply to Mr. JOHN FARLER, Nailsea, near Bristol.

FOR SALE, BY PRIVATE CONTRACT, the CWM BACH COLLIERIES, situated about two miles from the town of Swansea, in the county of Glamorgan, and within 70 yards of the South Wales Railway, having the Six-foot and Three-foot Seams of HIGH BITUMINOUS COAL, now open and in good working order, with engine, boiler, pumping and winding gear, complete, now working on both seams, and open for inspection on application to the proprietor, or to the manager on the works. For further particulars apply to the proprietor, Mr. DANIEL JONES, No. 48, Strand, Swansea.

MINERAL ESTATE ON THE YORKSHIRE COAST, NEAR SCARBORO.—THE ROYALTY TO LET.—It abounds with rich seams of ALUM ROCK, DOGGERS, or CEMENT STONE, IRON ORE, JET, FREESTONE, LIAS LIMESTONE, and MATERIALS FOR MAKING FIRE BRICKS, &c. A capitalist could easily bring this property into profitable working. If a joint-stock company were formed, the proprietor would take a number of the shares.—Apply to Mr. HAMMOND, Raven Hall, Scarboro.—September 4, 1863.

IRONSTONE ROYALTY TO LET, in a property of 160 acres, containing the VALUABLE CLEVELAND SEAM, which is intersected by the North-Eastern Railway, and is confidently offered to the notice of ironmasters, &c., as possessing unequalled facilities for the ECONOMIC MANUFACTURE of PIG IRON. There is a splendid site for furnaces close to the line, with sidings for materials, and TIP GROUND for SLAG. An inexhaustible supply of PURE WATER, SAND, and BUILDING STONE on the property. The ironstone can be won at a minimum cost by drift, at an elevation to command the furnaces. The proprietor has fully OPENED OUT the MINE, formed a permanent main gateway of stone-work to the face of the stone, sunk an air shaft, and all is ready for a start.—For further particulars, apply to Mr. E. DOWKIN, land agent, Barmby Moor, York; or to Messrs. WALKER and LANGBROOK, solicitors, Maltby, Yorkshire.

TO BE LET, and entered upon at Michaelmas next, the PREMISES at RHYD-Y-MWYN, near MOLD, FLINTSHIRE, at present occupied by Messrs. Taylor and Co., as an IRON FOUNDRY. These premises are desirably situated, about three miles from Mold, on the River Alyn, in the very heart of the Mold mining district, and possessing an extensive water-power, well calculated for being used as a foundry, as at present, or for the establishment of a manufactory for worms and other rolling stock.

The Mold and Denbigh Railway, for which an Act of Parliament has already been obtained, will pass within a few yards of the works. The water-wheels at present on the works can be had at a valuation.

Mr. BOWDAY, Tyddyn-y-Gwyn, near Mold, will show the premises; and further particulars may be had on applying to Mr. G. M. DIXON, Bucknowle House, Warham, Denbigh.—Bucknowle House, August 29, 1863.

DINAS FIRE-BRICKS.—MESSRS. FREDERICKS AND JENNER beg to offer these well-known bricks, either at their Dinas Bridge or Kidwelly Works, and can safely recommend them as EQUAL, if not SUPERIOR, to ANY FIRE-BRICKS MANUFACTURED, having the highest testimonials from the largest copper smelters and consumers in the world.—Full particulars, with testimonials, prices, &c., can be had on application to their agent, Mr. GEORGE YOUNG, Briton Ferry, South Wales; the Dinas Bridge Brick Works, Glynneath; Kidwelly Brick Works, Kidwelly; or Messrs. EASTWOOD, Belvidere-road, London.

TO INVENTORS.—ALL INTENDING PATENTEES should PROCURE THE PRINTED INFORMATION regarding PATENTS, their COST and the MODE of PROCEDURE to be adopted, ISSUED GRATIS by the GENERAL PATENT COMPANY (LIMITED), 71, FLEET STREET, LONDON.

M. R. GEORGE HENWOOD, MINING ENGINEER, LOCHHEAD HOUSE, LOCHWINNOCH, SCOTLAND, OFFERS his SERVICES and ADVICE on mines situated in any part of England, Scotland, Wales, Ireland, Isle of Man, &c. Mr. Henwood's extensive experience in his peculiar department of mining science is well known, and will be exerted to the utmost for the benefit of his clients.

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Messrs. FULLER AND CO. continue to BUY and SELL EVERY DESCRIPTION of SHARES in BANKS, CANALS, MINES, RAILWAYS, and GOVERNMENT STOCK, either for money or account. Stock Exchange business effected upon the usual commission.

Capitalists who seek safe and profitable investment will find that mines afford a wider range for profit than any other public security, and pay dividends quarterly from 12½ to 20 per cent. per annum. Progressive mines frequently advance hundreds per cent.

Messrs. FULLER and Co. having channels for the disposal of shares comprised in the miscellaneous list, invite the holders thereof to communicate with them; and having had upwards of 20 years' experience in the mining market, are prepared to advise as to the purchase of shares for an early advance in price, and for becoming a safe and remunerative investment.

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For prices, illustrated description, and testimonials, apply to AVELING and PORTER, engineers, Rochester, Kent.

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The WEST ARDSLEY COMPANY having, by recently patented improvements, perfected their coal cutting machinery, worked by compressed air, are NOW READY to MAKE CONTRACTS for the CONSTRUCTION and USE of their MACHINES.

The results of twelve months' experience in the working of these machines, by the West Ardsley Company, have proved most satisfactory, their use being found to CHEAPEN the COST and IMPROVE the average SIZE of the COAL, to LIGHTEN the LABOUR, and also to MODIFY the SANITARY CONDITION of the MINE.

All communications to be made to Messrs. FIRTH, DONISTHORPE, and BOWER, No. 8, Britannia-street, Leeds.

NOTICE.—The WEST ARDSLEY COMPANY, having reason to believe that their patents are being infringed upon, hereby give notice that they will TAKE LEGAL PROCEEDINGS AGAINST ALL PARTIES who may MAKE FOR SALE, or USE ANY MACHINERY in the construction of which any such INFRINGEMENT is MADE.

EDWARD'S PATENT MINERAL ORE and COAL WASHING MACHINE.—This is by far the MOST ECONOMICAL, as well as the MOST PERFECT MACHINE MADE. Each machine is capable of washing 25 to 50 tons per diem, according to quality.—Full particulars, testimonials, &c., may be obtained from E. EDWARDS, Esq., C.E., 1, York-buildings, Adelphi, where a working model may be seen.

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THE TURBINE.—MACADAM BROTHERS AND CO., ENGINEERS, SOHO FOUNDRY, BELFAST, have been engaged for 12 years, with complete success, in MANUFACTURING their IMPROVED TURBINES, and can recommend them with confidence.

This machine is applicable to all practicable heights of fall and quantities of water, giving a much higher percentage of power than any other description of water-wheels.

On low falls it has the additional advantage of not being affected by floods or back-water, and it is particularly well adapted for any falls where the quantity of water is variable.

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|---|---------------|---------------|-----------------|------------------|-----------------------------|-------------------|
| 1000 Alderidge Edge (Cheshire) [L.] [*] | 10 0 0. | .. | .. | 7 18 4. | 0 10 0—May, | 1864 |
| 4000 Bedford United (copper), Tavistock [*] | 3 6 8. | .. | .. | 13 1 0. | 1 6—July, | 1864 |
| 1244 Boscastle (tin, copper), St. Just | 6 15 0. | .. | .. | 0 8 0. | 0 5 0—June, | 1864 |
| 3400 Boscan (tin), St. Just | 20 10 0. | .. | .. | 38 10 0. | 1 1 0—Mar, | 1864 |
| 300 Totalbait (tin, copper), St. Just | 91 5 5. | .. | .. | 469 15 0. | 7 0 0—Aug, | 1864 |
| 4000 Bronfoidy (lead), Cardigan [L. £3] | 2 7 8. | .. | .. | 6 11 6. | 2 6—Aug, | 1864 |
| 918 Cargill (silver-lead), Newlyn [*] | 15 8 7. | 45. | .. | 4 15 0. | 1 5 0—Aug, | 1864 |
| 1900 Carn Brae (copper, tin), Illogan [*] | 15 0 0. | .. | 65 70 | 278 10 0. | 0 2 0—Feb, | 1864 |
| 3000 Chelverton (lead), Perranarmondu [*] | .. | .. | 7 7 1. | .. | .. | .. |
| 3800 Clifford Amalgamated (cop.), Gwen [*] | 30 0 0. | 37. | 34 14 35 1. | 29 6 0. | 0 12 6—Aug, | 1864 |
| 1024 Copper Hill (copper) Redruth | 12 0 0. | .. | 20 21 | 2 7 6. | — | Sept. |
| 12000 Copper Miners of England | 26 0 0. | .. | .. | 7 16 per cent. | — | Half-yearly |
| 40000 Ditto ditto (stock) | 100 0 0. | .. | .. | 1 per cent. | — | Half-yearly |
| 1055 Craddock Moor (copper), St. Cleer [*] | 8 0 0. | .. | .. | 7 12 0. | 0 4 0—July, | 1864 |
| 812 Cresgarwau and Penkeville, St. Colombe | .. | .. | .. | 0 10 0. | 0 10 0—Jan, | 1864 |
| 867 Cwrt Ewlin (lead) Cardiganshire [L.] | 7 18 0. | 20. | .. | 9 18 0. | 0 15 0—July, | 1864 |
| 128 Cwmystwyth (lead), Cardiganshire [*] | 60 0 0. | .. | .. | 255 10 0. | 4 0 0—Aug, | 1864 |
| 280 Derwent Mines (sl.-lead), Durham | 300 0 0. | .. | .. | 147 0 0. | 5 0 0—June, | 1864 |
| 1024 Devon Gt. Con. (cop.), Tavist. [S.E.] 1 0 0. | .. | .. | 565 575 | 863 0 0. | 9 0 0—July, | 1864 |
| 358 Dolcoath (copper, tin), Camborne [*] | 128 17 6. | .. | .. | 725 10 0. | 8 0 0—Aug, | 1864 |
| 12800 Drake Wallis (tin, copper), Calstock | 2 1 0. | 33. | 84s. 36s. | 18 18 0. | 0 1 6—May, | 1864 |
| 2000 Dwyngwyn (lead), Wales | 19 6 8. | .. | .. | 6 17 6. | 0 3 6—Jan, | 1864 |
| 512 East Bassett (cop.), Redruth [S.E.] [*] | 29 10 0. | 80. | 78 80 | 111 6 0. | 2 0 0—July, | 1864 |
| 6144 East Cardigan (copper), St. Cleer [S.E.] | 19 4 5. | 28 1/2. | 28 1/2 29 | 7 7 6. | 0 12 6—July, | 1864 |
| 300 East Darren (lead), Cardiganshire [*] | 82 0 0. | 50. | .. | 87 10 0. | 2 0 0—Aug, | 1864 |
| 128 East Pool (tin, copper), Pool, Illogan | 24 8 5. | .. | .. | 840 0 0. | 5 0 0—Aug, | 1864 |
| 2000 Foxdale (lead) Isle of Man [L.] | 25 0 0. | .. | .. | .. | — | — |
| 5000 Frank Mill (lead), Devon | 3 18 6. | .. | .. | 6 16 0. | 0 2 0—Mar, | 1864 |
| 1798 Great Wheal Fortune (tin), Breage | 18 6 0. | 27. | 29 30 | 5 5 0. | 0 15 0—Aug, | 1864 |
| 5908 Great Wh. Vor (tin, cp.), Helston [S.E.] 40 0 0. | .. | .. | .. | 2 7 6. | 0 5 0—Mar, | 1864 |
| 1024 Gunn Lake (Clitters' Adit) | 0 2 0. | .. | .. | 0 3 0. | 0 1 6—Mar, | 1864 |
| 1024 Harrodsfoot (id.), near Liskeard [S.E.] | 8 18 0. | 39 1/2. | .. | 25 0 0. | 1 15 0—June, | 1864 |
| 1000 Hibernian Mine Company | 92 6 2. | .. | .. | 11 18 0. | 2 0 0—Aug, | 1864 |
| 400 Lisburne (lead), Cardiganshire, Wales [*] | 18 18 0. | .. | .. | 409 10 0. | 2 0 0—Aug, | 1864 |
| 9000 Marks Valley (copper), Cardon | 4 10 6. | 6. | 6 1/2 6 1/2 | 2 9 6. | 0 1 0—July, | 1864 |
| 1800 Minera Mining Co. [L.], Wrexham [*] | 25 0 0. | .. | .. | 122 18 0. | 7 15 0—Aug, | 1864 |
| 20000 Mining Co. of Ireland (cop., lead, coal) 7 0 0. | .. | .. | 18 1/2 | 15 17 7. | 0 11 2—Jan, | 1864 |
| 6000 Mount Pleasant (lead), Mold | 4 0 0. | .. | .. | 18 18 1. | 0 7 6—Aug, | 1864 |
| 40000 Mwndy (iron ore) [L. £4] [S.E.] | 2 10 0. | .. | .. | 0 2 0. | 0 2 0—Mar, | 1864 |
| 250 Nanty Mines (lead), Montgomery | 20 0 0. | .. | .. | 3 0 0. | 2 0 0—June, | 1864 |
| 5536 North Treskerby (copper), St. Agnes | 1 9 0. | .. | .. | 0 7 6. | 0 1 6—June, | 1864 |
| 5000 Orsadd (lead), Flintshire | 0 0 8. | .. | .. | 0 10 4. | 0 0 8—Mar, | 1864 |
| 6400 Par Consols (cop.), St. Blazey [S.E.] 1 2 6. | .. | .. | .. | 36 19 0. | 0 2 6—Mar, | 1864 |
| 392 Parry Mines (copper), Anglesey [L.] 50 0 0. | .. | .. | .. | 72 10 0. | 10 0 0—July, | 1864 |
| 1772 Polderno (tin), St. Agnes | .. | .. | .. | 7 9 6. | 0 10 0—April, | 1864 |
| 512 Polbreen (tin) | 8 0 0. | .. | .. | 1 0 0. | 1 0 0—July, | 1864 |
| 1192 Providence (tin), Uly Leislant [S.E.] | 10 6 7. | 43. | 41 43 | 69 15 0. | 1 5 0—Aug, | 1864 |
| 8000 Rosehill Hill and Ranson United | 2 16 0. | .. | .. | 0 10 0. | 0 1 6—June, | 1864 |
| 16 Rhossemor (lead) | 50 0 0. | .. | .. | 1250 0 0. | 100 0—Quarterly | .. |
| 512 South Cardigan (cop.), St. Cleer [S.E.] 1 5 0. | 425. | .. | 415 420 | 409 0 0. | 5 0 0—July, | 1864 |
| 513 South Tolquis (cop.), Redruth, Cornwall [*] 8 0 0. | 43. | .. | 41 43 | 74 10 0. | 1 0 0—May, | 1864 |
| 5000 South Exmouth (lead), Christow | 1 0 0. | .. | .. | 0 5 0. | 0 5 0—Dec, | 1864 |
| 496 S. Wn. Francis (cop.), Illogan [S.E.] 18 18 0. | .. | .. | .. | 368 6 0. | 1 0 0—July, | 1864 |
| 1024 South Woodley | 0 5 6. | .. | .. | 0 6 0. | 0 6 0—June, | 1864 |
| 250 Spears Moor (tin, copper), St. Just | 17 19 2. | .. | .. | 9 18 0. | 1 0 0—June, | 1864 |
| 94 St. Ives Consols (tin), St. Ives | 8 0 0. | .. | .. | 487 10 0. | 1 0 0—Aug, | 1864 |
| 8000 Tincroft (cop., tin), Pool, Illogan [S.E.] 9 0 0. | 20. | 19 1/2 20 1/2 | .. | 13 8 6. | 1 0 0—Aug, | 1864 |
| 1000 Trumper Consols (tin), near Helston | 11 10 0. | .. | .. | 31 0 0. | 2 0 0—Mar, | 1864 |
| 4200 Vigras and Clogau (copper) [L. £5] | 2 18 0. | .. | .. | 4 12 6. | 1 0 0—Oct, | 1864 |
| 9000 West Bassett (copper), Illogan [S.E.] 1 10 0. | .. | .. | .. | 24 2 0. | 0 5 0—July, | 1864 |
| 1024 West Cardigan (cop.), Liskeard [S.E.] 5 0 0. | 25 1/2. | 22 1/2 25 | .. | 101 1 3. | 0 10 0—Oct, | 1864 |
| 286 West Damsel (copper), Gwenpenn | 35 10 0. | .. | .. | 47 0 0. | 1 0 0—July, | 1864 |
| 8000 West Fowey Consols (tin and copper) | 7 10 0. | .. | .. | 19 19 0. | 0 3 0—May, | 1864 |
| 400 W. Wh. Steson (cop.), Camborne [S.E.] 47 10 0. | 235. | .. | 225 235 | 388 0. | 0 5 0—Aug, | 1864 |
| 512 Wheal Bassett (copper), Illogan [S.E.] 5 2 6. | .. | .. | 75 80 | 593 10 0. | 1 0 0—Aug, | 1864 |
| 1000 Wheal Bassett and Grylls (tin) | 7 0 0. | .. | .. | 2 10 0. | 0 10 0—July, | 1864 |
| 1024 Wheal Grylls (tin), Perranuthnoe | 2 4 0. | 30. | 28 30 | 5 2 0. | 1 0 0—Aug, | 1864 |
| 4800 Wh. Ludicot and Wrey (lead), St. Ives | 2 10 8. | 31. | 31 1/2 33 1/2 | 3 4 6. | 0 2 6—April, | 1864 |
| 898 Wh. Margaret (tin), Uly Leisl. [S.E.] 9 17 6. | 30. | 29 31. | .. | 76 5 0. | 1 0 0—May, | 1864 |
| 100 Wheal Mary (tin), Lelant | 36 2 6. | .. | .. | 284 5 0. | 4 0 0—Mar, | 1864 |
| 1024 Wh. Mary Ann (id.), Menheniot [S.E.] 8 0 0. | 13. | 11 1/2 12 1/2 | .. | 57 7 6. | 0 10 0—Mar, | 1864 |
| 90 Wheal Owles (tin), St. Just, Cornwall 70 0 0. | .. | .. | .. | 328 3 0. | 0 5 0—Aug, | 1864 |
| 396 Wheal Seton (tin, copper), Camborne | 58 10 0. | 221. | 215 220 | 156 15 0. | 3 0 0—Aug, | 1864 |
| 1040 Wh. Trelowarn (sl.-lead), Liskeard [S.E.] 5 17 0. | .. | .. | .. | 47 12 6. | 0 10 0—Aug, | 1864 |
| 2044 Wheal Tremayne (tin), Gwineas | 6 11 3. | .. | .. | 16 17. | 0 11 1. | .. |
| 5050 Wicklow (copper) [L.], Wicklow | 8 0 0. | .. | .. | 0 10 0. | 0 10 0—Aug, | 1864 |
| 46 3 6. | .. | .. | .. | 46 3 6. | 6 0 6—Aug, | 1864 |

* Dividends paid every two months. † Dividends paid every three months.

MINES WITH DIVIDENDS IN ABEYANCE

| | | | | | | | | | | |
|------|---|----|----------|-------|----------|----|--------|--------|---------------|------|
| 256 | Condurrow (cop., tin), Camborne. | 35 | 0 0.. | — | 90 92½ | .. | 85 | 0 0.. | 2 0 0—June, | 1855 |
| 2450 | Cook's Kitchen (copper), Illogan. | 17 | 15 9.. | 26 | .. | .. | 1 | 7 0.. | 0 7 0—May, | 1855 |
| 4078 | Devon and Cornwall (copper) | 5 | 16 3.. | — | .. | .. | 10 | 0 0.. | 0 2 6—Feb., | 1855 |
| 4772 | Ding Dong (tin), Gulval. | 40 | 18 6.. | — | — | .. | 18 | 7 6.. | 1 10 0—Mar., | 1855 |
| 940 | Fowey Consols (copper), Tywardreath | 4 | 0 0.. | — | .. | .. | 41 | 9 3.. | 0 3 6—June, | 1866 |
| 8000 | Great South Tolpuddle [S.E.], Redruth. | 0 | 14 6.. | 32 | 31 ½ 33% | .. | 7 | 18 6.. | 0 5 0—Dec., | 1866 |
| 5000 | Kelly Bray (lead, copper), Callington. | 4 | 15 6.. | 76 | 54 ½ 78% | .. | 6 | 0 0.. | 0 2 0—Feb., | 1866 |
| 180 | Levant (copper, tin), St. Just. | — | 19 0 0.. | — | — | .. | 1091 | 0 0.. | 5 5 0—May, | 1866 |
| 8000 | New Birth Toc and Vitter Cons. (tin). | 1 | 6 6.. | — | — | .. | 3 | 6 6.. | 0 1 0—Sept., | 1866 |
| 470 | Newtownards Mining Co., Co. Down. | 50 | 0 0.. | — | — | .. | 58 | 0 0.. | 1 0 0—Sept., | 1866 |
| 4028 | Noweswarne Consols (copper) | — | 19 19.. | — | — | .. | 2 | 0 0.. | 2 0 0—Oct., | 1866 |
| 9600 | Tamar Con. (sl. -Id.), Beralston [S.E.] | 4 | 10 0.. | — | — | .. | 6 | 0 0.. | 0 2 8—Jan., | 1866 |
| 572 | Trelowyn Consols (tin), St. Ives. | 13 | 10 0.. | — | — | .. | 7 | 0 0.. | 0 10 0—Sept., | 1866 |
| 1024 | Wendron Consols (tin), Wendron. | 13 | 18 10.. | — | — | .. | 8 | 15 0.. | 1 0 0—Jan., | 1866 |
| 60 | West Burton Gill (lead), Yorkshire. | 50 | 0 0.. | — | — | .. | 14 | 10 0.. | 3 0 0—June, | 1866 |
| 256 | Wheal Buller (cop.), Redruth [S.E.] | 5 | 0 0.. | 42½.. | 39 41 | .. | 929 | 0 0.. | 2 0 0—Mar., | 1866 |
| 8000 | West Chiverton, (lead), Perranzabuloe. | — | — | 31.. | 31 32 | .. | — | — | — | — |
| 128 | Wheat Friendship (copper), Devon. | 50 | 0 0.. | — | — | .. | 2400 | 10 0.. | 5 0 0—Feb., | 1866 |
| 1024 | Wheat Hoars (tin), St. Just. | 10 | 18 8.. | — | — | .. | 5 | 0 0.. | 5 0 0—May, | 1866 |
| 513 | Wheat Jane (silver-lead), Kex. | — | 3 10 0.. | — | 14½ 15 | .. | 13 | 10 0.. | 1 0 0—Mar., | 1866 |
| 1024 | Wheat Kitty (tin), Uny Lelant [S.E.] | 2 | 0 6.. | — | 10½ 11½ | .. | 8 | 10 0.. | 0 10 0—April, | 1866 |
| 4298 | Wheat Kitty (tin), St. Agnes | 5 | 4 6.. | 8½.. | 8 ½ 8½ | .. | 18 6.. | 0 2 0 | 0 7 0—July, | 1866 |

FOREIGN MINES

| FOREIGN MINES. | | | | | | | |
|----------------|---|----|----|-----|----|-----------|----------------------------|
| 2444 | Burra Burra (cop.), South Australia. | 8 | 0 | 0. | — | — | 310 0 0.. 5 0 0—June, 196 |
| 6000 | Central American (silver) [L.] | 5 | 0 | 0. | — | — | 2 2 9.. 0 14 6—Oct., 196 |
| 12000 | Cobre Copper Co. (cop.), Cuba [S.E.] | 40 | 0 | 0. | 31 | .. 30 32 | 98 12 0.. 1 0 0—Jan., 196 |
| 10000 | Copiapo Mining Company, Chile [S.E.] | 16 | 0 | 0. | — | — | 6 18 0.. 0 10 0—Nov., 196 |
| 18000 | East Indian Coal, Calcutta [L.] | 10 | 0 | 0. | — | — | 7½ per cent. — Yearly. |
| 70000 | English and Australian [S.E.] | 5 | 0 | 0. | — | — | 1 7 0.. 0 2 6 2—Feb., 196 |
| 25000 | Fortuna (lead), Spain [L.] [S.E.] | 2 | 0 | 0. | — | — | 0 8 4.. 0 3 4—Mar., 196 |
| 25000 | Gen. Mining Assoc., Nova Scotia [S.E.] | 20 | 0 | 0. | 22 | .. 20 22 | 19 15 0.. 0 10 0—June, 196 |
| 65000 | Kapunda Mining Co., Australia [S.E.] | 1 | 0 | 0. | 1 | — | 0 10 0.. 0 1 0—June, 196 |
| 18000 | Linares (Id.), Poco Ancho, Spain [S.E.] | 3 | 0 | 0. | — | — | 9 6 2.. 0 5 0—June, 196 |
| 10000 | Lusitanian (of Portugal) [S.E.] | .. | 2 | 0 | — | — | 0 19 9.. 0 1 0—Feb., 196 |
| 108815 | Marquette and New Grana (S.E.) | 1 | 0 | 0. | — | — | 0 9 6.. 0 1 6—July, 196 |
| 100000 | Port Phillip (gold), Clunes [S.E.] | .. | 1 | 0 | — | — | 0 9 6.. 0 1 0—July, 196 |
| 111000 | St. John del Rey [L.], Brazil [S.E.] | 15 | 0 | 0. | 57 | .. 55 57 | 58 5 0.. 3 10 0—June, 196 |
| 43174 | Unit. Mexican (all.), Mexico [S.E.] | 18 | 28 | 50. | 7 | — | 3 9 0.. 0 7 6—May, 196 |
| 36000 | West Canada Mining Company [L.] | 1 | 0 | 0. | — | — | 0 2 0.. 0 4 0—May, 196 |
| 45500 | Wendoverianas (silver), S.A. II [S.E.] | 20 | 0 | 0. | 92 | .. 92. 92 | 0 5 0.. 0 5 0—April, 196 |

FOREIGN MINES WITH DIVIDENDS IN ARREARAGE

| FOREIGN MINES WITH DIVIDENDS IN ABEYANCE | | | | | | | |
|--|----------------------|---|-----|-----|---|---------------------|-------------------|
| 10000 Alten and Quennangen Uni. (cop.) | L. [£] 6 | 4 | 10 | 0.. | — | — | 4 0 0 0 15 0—Nov. |
| 10000 Gt. Barrier Land. Min., Sc., N.Z. | L. [£] 6 | 4 | 10 | 0.. | — | — | 15 per cent.—May. |
| 10000 Pontgibaud (sl.-lead), France | S.E. [£] 30 | 0 | 0.. | — | — | 1 0 0.. 1 0 0—June. | |

NON-DIVIDEND FOREIGN MINES

| Shares. | Mines. | Paid. | Last Pr. | Pr. Bus. | done. | Last Cal. |
|---|--------------|-------|----------|----------|-------|------------|
| 35000 Alamillos (lead), Spain [L. £1] | 0 10 0 | 1% | ..% | .. | .. | .. |
| 30000 Australian (copper), South Australia [S.E.] | 7 7 6 | .. | .. | .. | .. | Sept. 186 |
| 20000 Bearis Tin Streaming Company [L. £1] | 0 15 0 | .. | .. | .. | .. | May, 186 |
| 75000 Bon Accord, South Australia (copper) [L. £1] [S.E.] | 1 0 0 | .. | .. | .. | .. | Fully paid |
| 15000 Cape Copper Mining Company [L. £10] | 0 0 0 | .. | .. | .. | .. | June, 186 |
| 25000 Capua (silver), Mexico [L. £2] [S.E.] | 0 15 0 | .. | .. | .. | .. | Jan. 186 |
| 17000 Central Italian (copper) [7000 £2 paid] | 0 6 0 | .. | .. | .. | .. | Jan. 186 |
| 60000 Clarence Consols (copper), Jamaica [S.E.] | 1 2 6 | .. | .. | .. | .. | July, 186 |
| 10000 Copiapo Smelting [L.] , Chile | 10 0 0 | .. | .. | .. | .. | Fully paid |
| 100000 Don Pedro North Derby (gold), Brazil [L. £1] [S.E.] | 0 10 0 | 1% | 1% | 1% | .. | Ang. 186 |
| 75000 Dun Mountain (copper), New Zealand [L.] [S.E.] | 1 0 0 | .. | .. | .. | .. | Fully paid |
| 25000 East del Rey (gold), Brazil [L. £2] | 1 0 0 | .. | .. | .. | .. | Sept. 186 |
| 20000 East Kongsborg Native Silver Mining Co. of Norway [L. £5] | 1 7 6 | .. | .. | .. | .. | Mar. 186 |
| 20000 Elbe Colliery Company, Bohemia [L.] | 1 0 0 | .. | .. | .. | .. | Fully paid |
| 30000 Ellerlie and Bardowie (copper), Jamaica | 0 18 0 | .. | .. | .. | .. | July, 186 |
| 8000 English and Canadian Mining Company [L.] | 5 0 0 | .. | .. | .. | .. | Fully paid |
| 40000 Fortune (copper), West Australia [L.] | 2 0 0 | .. | .. | .. | .. | Fully paid |
| 20000 Great Northern (copper), South Australia [L. £5] [S.E.] | 1 10 0 | .. | .. | .. | .. | June, 186 |
| 24000 Hindostan (copper), Bengal [L. £5] | 3 0 0 | .. | .. | .. | .. | Feb. 186 |
| 4000 Hope Silver-Lead and Copper Mining Co. [L.] , Jamaica | 25 0 0 | .. | .. | .. | .. | Fully paid |
| 10000 Karbitez Colliery Company [L.] | 1 0 0 | .. | .. | .. | .. | Fully paid |
| 30000 Lagunauro (sulphur, copper), Portugal [L.] | 1 0 0 | .. | .. | .. | .. | Fully paid |
| 100000 Montes Aureos (gold), Brazil [L.] [S.E.] | 2 0 0 | .. | 2% | 2% | 3 | .. |
| 3000 New Burn, Burna (copper), Australia | 5 0 0 | .. | .. | .. | .. | Fully paid |
| 25000 New Granada (gold), South America [S.E.] | 1 0 0 | .. | .. | .. | .. | Ang. 186 |
| 10000 New Grand Duchy of Baden (silver-lead), near Freiburg | 1 0 0 | .. | .. | .. | .. | Fully paid |
| 60000 North Rhine Copper of South Australia [L. £1] [S.E.] | 0 17 6 | .. | .. | .. | .. | Nov. 186 |
| 50000 Nova Scotia (iron and gold) [L. £1] | 1 0 0 | .. | .. | .. | .. | .. |
| 15000 Pacifica Silver Mining Company, Mexico [L. £1] | 1 0 0 | .. | .. | .. | .. | .. |
| 17000 Quebradas (copper), Venezuela [L. £10] | 3 10 0 | .. | .. | .. | .. | June, 186 |
| 10000 San Roque (copper), Spain | 5 0 0 | .. | .. | .. | .. | Fully paid |
| 60000 Santa Barbara (gold), Brazil [L. £1] | 0 10 0 | .. | .. | .. | .. | Mar. 186 |
| 120000 Scottish Australian Mining Company [L. £1] | 0 15 0 | .. | .. | .. | .. | May, 186 |
| 15000 South Europe Mining Company, Spain [L. £5] | 3 0 0 | .. | .. | .. | .. | May, 186 |
| 50000 St. John's United (copper, lead), Newfoundland [L.] | 1 0 0 | .. | .. | .. | .. | Fully paid |
| 12000 Tepitzli Colliery Co., Bohemia [L. £5] | 3 0 0 | .. | .. | .. | .. | June, 186 |
| 50000 Vallanzenza (gold), Italy [L. £1] | 0 5 0 | .. | 1% | 1% | .. | .. |
| 10000 Vancouver (coal) [L. £10] | 5 0 0 | .. | .. | .. | .. | Fully paid |
| 45000 Victor Emanuel (copper), Italy [L.] | 1 0 0 | .. | .. | .. | .. | Oct. 186 |
| 10000 Western Africa Malchisite (copper) [L.] | 110 0 | .. | .. | .. | .. | Fully paid |
| 13000 Wheal Ellen (copper), South Australia [L.] | 5 0 0 | .. | .. | .. | .. | Fully paid |
| 20000 Worthing (copper), South Australia [L. 175 E.] | 1 0 0 | .. | .. | .. | .. | .. |

PROGRESSIVE MINES.

| Shares. | Mines. | Paid. | Last Pr. | Bus. done. | Last Cal. |
|--|------------|----------|------------------|------------|-----------|
| 700 Aberdovey (sl.-lead), Merlo. | 1 10 0 .. | .. | .. | .. | .. |
| 6000 Aberfrwd (lead), Cardigan .. | 0 10 0 .. | .. | .. | .. | .. |
| 12000 Anna Maria (sl., cp., gold) [L.] | 1 0 0 .. | .. | .. | .. | .. |
| 35000 Atlas Min. and Smelt. [L.] | 0 15 0 .. | .. | .. | .. | .. |
| 6000 Bagtor [L.] | 1 14 0 .. | .. | .. | .. | .. |
| 10000 Baldwin, I. of Man [L. £5] .. | 2 15 0 .. | .. | .. | .. | .. |
| 1824 Ballswiddon (tin), St. Just | 1 8 7 .. | .. | .. | .. | .. |
| 10000 Bamfylde (copper), Devon. .. | 1 0 0 .. | .. | .. | .. | .. |
| 4000 Bedford Consols (copper) .. | 2 6 0 .. | .. | .. | .. | .. |
| 2000 Berehaven (copper), Ireland .. | 1 0 0 .. | .. | .. | .. | .. |
| 4000 Billings [L.] £30 [200 £20 pd.] | 30 0 .. | .. | .. | .. | .. |
| 2280 Boscombe (tin, cp.), St. Austell | 7 10 0 .. | .. | .. | .. | .. |
| 160 Bosorne & Bollowall, St. Just | 6 5 0 .. | .. | .. | .. | .. |
| 5000 Bottie Hill (tin) Plympton .. | 1 7 0 .. | .. | .. | .. | .. |
| 12000 Brea Con, (tin), St. Ives [L. 50s.] | 1 10 6 .. | .. | .. | .. | .. |
| 4000 British (tin & cop.), L. £1 10s. .. | 0 13 0 .. | .. | .. | .. | .. |
| 4000 Brookwood (cop.), Ashton .. | 1 19 6 .. | .. | .. | .. | .. |
| 112 Bron-Haulig (sl.), Denbighsh. .. | 26 0 .. | .. | .. | .. | .. |
| 5120 Brynamor (id.), Cardif. [L. £5] .. | 2 8 0 .. | .. | .. | .. | .. |
| 200 Bryndaf Hall (lead), Flint .. | 26 0 .. | .. | .. | .. | .. |
| 500 Bryn Gwlog (lead), Flint .. | 8 0 0 .. | 35 .. | 32 1/2 33 1/2 .. | .. | .. |
| 1861 Bryntaf (lead), Llanidloes .. | 7 17 6 .. | .. | .. | .. | .. |
| 6580 Butler and Bassett Unit. (cop.) .. | 4 1 6 .. | .. | .. | .. | .. |
| 1200 Burra Burra (cop.), Kenwyn .. | 2 10 0 .. | .. | .. | .. | .. |
| 2200 Burren (lead, calamine) [L. £5] .. | 5 0 0 .. | .. | .. | .. | .. |
| 12000 Calstock Consols (cop.), Calst. | 1 17 6 .. | .. | .. | .. | .. |
| 915 Calvadnack, Wendron (tin) .. | 23 16 6 .. | 6 1/2 .. | 6 1/2 .. | .. | .. |
| 1000 Camborne Consols (copper) .. | 18 0 0 .. | .. | .. | .. | .. |
| 4600 Camborne V. & Wh. Francis .. | 8 19 4 .. | .. | .. | .. | .. |
| 75000 Cambrian Consol. (gd., L. £2) .. | 1 0 0 .. | .. | .. | .. | .. |
| 914 Cardon Cons. (cop.), St. Cleer .. | 26 19 6 .. | .. | .. | .. | .. |
| 4046 Cardon Hill (copper) .. | 2 1 6 .. | .. | .. | .. | .. |
| 6000 Cardon United (copper) .. | 0 10 0 .. | .. | .. | .. | .. |
| 10000 Cardon Vale (copper) .. | 5 0 0 .. | .. | .. | .. | .. |
| 10000 Cardigan Consols (lead & cop.) .. | — .. | .. | .. | .. | .. |
| 2580 Carmarthenshire United (lead) .. | 5 0 0 .. | .. | .. | .. | .. |
| 6000 Camborne (copper) .. | 0 16 0 .. | .. | .. | .. | .. |
| 4370 Carnewas (id., cop.), Mawgan .. | 1 8 0 .. | .. | .. | .. | .. |
| 3000 Carn Vivian (tin, cop., lead) .. | 2 1 6 .. | .. | .. | .. | .. |
| 1048 Carnyorth (tin), St. Just .. | 4 5 0 .. | .. | .. | .. | .. |
| 20000 Carysfort [£320 £2 1/2 pd.] 16,000 £1 pd.] .. | — .. | .. | .. | .. | .. |
| 10000 Castleward, Ireland [L.] .. | 1 0 0 .. | .. | .. | .. | .. |
| 2500 Cefn Cilcain (id.), Flint [L. £5] .. | 2 3 0 .. | .. | .. | .. | .. |
| 200 Cefn Cwm Brwyo (lead) .. | 33 0 .. | .. | .. | .. | .. |
| 2500 Central Minera (lead) [L. £5] .. | 2 1 0 .. | .. | .. | .. | .. |
| 6000 Charlotte Untd., Perranuthnoe .. | 4 1 8 .. | .. | .. | .. | .. |
| 4000 Clara Unit., Pontwyd [L. £3] .. | 1 14 6 .. | .. | .. | .. | .. |
| 787 Cilgaf & Wentworth (tin, cp.) .. | 31 5 0 .. | 10 .. | 9 10 .. | .. | .. |
| 3585 Coed Mawr Pool (lead) [L.] .. | 5 0 0 .. | .. | .. | .. | .. |
| 16000 Coolartars and Bond, Ireland .. | 1 0 0 .. | .. | .. | .. | .. |
| 50000 Connors (cop., sulphur) [L.] .. | 1 0 0 .. | .. | .. | .. | .. |
| 10000 Cornubia (tin) [£7000 £2 pd.] 3000 10s. pd.] .. | — .. | .. | .. | .. | .. |
| 861 Crane (copper), Camborne .. | 16 10 0 .. | .. | .. | .. | .. |
| 12000 Creake (cop.), Tavistock .. | 2 10 0 .. | .. | .. | .. | .. |
| 8000 Crookhaven (cop.) [L. £2 1/2] .. | 1 10 0 .. | .. | .. | .. | .. |
| 6000 Crown Cons. (cop.) [L. £2] .. | 1 10 0 .. | .. | .. | .. | .. |
| 2000 Crownlyn (lead), Llandioedd .. | 1 10 0 .. | .. | .. | .. | .. |
| 6000 Cudra (cop., tin), St. Austell .. | 3 15 6 .. | .. | .. | .. | .. |
| 1800 Cwmbrenn (lead) [L. £3] .. | 2 10 0 .. | .. | .. | .. | .. |
| 30000 Dale, N. Staff. [L.] [£1000 £1 pd.] 9000 7s. 6d. pd.] .. | — .. | .. | .. | .. | .. |
| 2000 Deep Level, Minera [L. £5] .. | 3 5 0 .. | .. | .. | .. | .. |
| 12000 Devon Union (copper) [L.] .. | 1 0 0 .. | .. | .. | .. | .. |
| 4568 Devon Wheal Buller (copper) .. | 4 10 0 .. | .. | .. | .. | .. |
| 20000 Dolfrw-y-nos (gold) [L. £1] .. | 0 10 0 .. | .. | .. | .. | .. |
| 1000 Durio (tin), Leinart .. | 2 2 0 .. | .. | .. | .. | .. |
| 5000 Dulta (tin) [L.] .. | 1 0 0 .. | .. | .. | .. | .. |
| 1000 Egglebrook (lead) [L. £30] .. | 16 0 0 .. | .. | .. | .. | .. |
| 600 East Abraham (copper) .. | 2 10 0 .. | .. | .. | .. | .. |
| 4996 East Alfred Consols (copper) .. | 6 13 7 .. | .. | .. | .. | .. |
| 1000 East Basset and Grylls (tin) .. | 1 0 0 .. | .. | .. | .. | 1 1/2 .. |
| 3000 E. Beam (tin), St. Aus. [L. £2] .. | 1 7 0 .. | .. | .. | .. | .. |
| 6000 E. Bottle Hill (tin), Plympton .. | 0 2 6 .. | .. | .. | .. | .. |
| 4096 E. Brookwood (copper) .. | 1 7 0 .. | .. | .. | .. | .. |
| 5000 E. Bronfloyd (sl.-ld.) Cardif. [L.] .. | 2 0 0 .. | .. | .. | .. | .. |
| 50000 East Cambrian (gold) [L. £1] .. | 10 0 0 .. | .. | .. | .. | .. |
| 6000 East Carn Brea (cop.) Redruth .. | 3 15 0 .. | 8 1/2 .. | 7 1/2 .. | 8 1/2 .. | .. |
| 2000 East Chiverton (lead) .. | 1 7 6 .. | 5 .. | .. | .. | .. |
| 65000 E. Clogau (gold), Merlo. [L. £1] .. | 0 5 0 .. | .. | .. | .. | .. |
| 6000 East Damsel (cop.), Gwennap .. | 11 0 0 .. | .. | .. | .. | .. |
| 4000 East Devon Gt. Consols (cop.) .. | 1 9 0 .. | .. | .. | .. | .. |
| 1200 East Dyllym (lead) [L. £5] .. | 3 0 0 .. | .. | .. | .. | .. |
| 2018 E. Falmouth (s.l.-d.), Kenwyn .. | 4 5 6 .. | .. | .. | .. | .. |
| 6000 E. Granville (cop.), Camborne .. | 15 0 0 .. | 3 3/4 .. | 3 3/4 .. | 3 3/4 .. | .. |
| 4000 E. Gunnis Lake & Bed. (ep.) .. | 7 3 6 .. | .. | .. | .. | .. |
| 6145 East Jane (sl.-ld.), Cardinham .. | 15 6 .. | .. | .. | .. | .. |
| 1024 E. Margaret (tin), Uny Lelant .. | 18 0 .. | .. | .. | .. | .. |
| 6000 East Martha [L. £2 10s.] .. | 1 5 0 .. | .. | .. | .. | .. |
| 4096 E. Providence (tin), Uny Lel. .. | 2 14 4 .. | .. | .. | .. | .. |
| 5000 E. Rosewarne (ep., tin), Gwln. .. | 15 0 0 .. | 2 1/2 .. | 2 1/2 .. | 2 1/2 .. | .. |
| 5610 East Seton (cop.), Camborne .. | 0 8 0 .. | .. | .. | .. | .. |
| 256 East Tolgus (copper), Redruth .. | 62 0 0 .. | .. | .. | .. | .. |
| 1024 E. Treskerby (cop.), Redruth .. | 7 10 0 .. | .. | .. | .. | .. |
| 1190 E. Wheat Agar (cop.), St. Cleer .. | 11 2 0 .. | .. | .. | .. | .. |
| 2000 E. Wh. Fortune (tin) Sithney .. | 1 0 0 .. | .. | .. | .. | .. |
| 2048 E. Wheal Grylls (tin, cop.) .. | 0 10 0 .. | .. | .. | .. | .. |
| 1996 E. Wh. Lovell (tin), Wendron .. | 2 18 6 .. | .. | .. | .. | .. |
| 4000 E. Wh. Russell, Tav. [S.E.] .. | 8 9 0 .. | 3 5/4 .. | 3 3/4 .. | 3 3/4 .. | 4 .. |
| 2000 Erweflin (lead) [L.] .. | 0 10 0 .. | .. | .. | .. | .. |
| 6000 Furze Hill Wood Cons., Buckl. .. | 1 1 0 .. | .. | .. | .. | .. |
| 1026 Garden (tin), Morval .. | 47 19 7 .. | .. | .. | .. | .. |
| 1024 Garlith Untd. (tin), Wendron .. | 2 10 0 .. | .. | .. | .. | .. |
| 1000 Garreg (lead), Flint .. | 5 9 0 .. | .. | .. | .. | .. |
| 4000 Gawton (copper), Tavistock .. | 2 2 0 .. | .. | .. | .. | .. |
| 6000 Gen. Min. Co. for Irel. (cop.) .. | 4 0 0 .. | .. | .. | .. | .. |
| 30000 Glasgow Cardon Cons. [L.] .. | 1 0 0 .. | .. | .. | .. | .. |
| 4892 Goginan (sl.-ld.) [£1000 £12 1/2 pd.] 2992 25s.] .. | — .. | .. | .. | .. | .. |
| 6144 Gonamena (copper), St. Cleer .. | 3 18 0 .. | 2 3/4 .. | 3 3/4 .. | 3 3/4 .. | 4 .. |
| 6400 Goonbarrow & Moelminn (tin) .. | 2 0 0 .. | .. | .. | .. | .. |
| 2000 Goonson (copper), St. Neot .. | 1 2 6 .. | .. | .. | .. | .. |
| 4568 Gramb. & St. Aubyn (ep.) [S.E.] .. | 0 6 0 .. | 11 .. | .. | .. | .. |
| 5000 Great Brigan (copper) .. | 5 11 6 .. | .. | .. | .. | .. |
| 4094 Great Cardon (cop.), St. Ives .. | 3 4 0 .. | .. | .. | .. | .. |
| 10000 Gt. Dev. & Bed. [£700 30s. pd.] 2900 50s. pd.] .. | — .. | .. | .. | .. | .. |
| 15000 Great Laxey (lead) [L.] .. | 4 0 0 .. | .. | .. | .. | .. |
| 5000 Great North Down (copper) .. | 3 10 0 .. | .. | .. | .. | .. |
| 6000 Gt. Relfallack (sl.-ld., blonde) .. | 2 1 6 .. | .. | .. | .. | .. |
| 52000 Great Tregone Consols (cop.) .. | 0 5 0 .. | .. | .. | .. | .. |
| 3730 Great Wheal Badern (tin) .. | 6 16 0 .. | .. | .. | .. | .. |
| 6000 Gt. Wh. Busy (cop., tin), Ken. .. | 15 14 6 .. | .. | .. | .. | .. |
| 119 Great Work (tin), Germoe .. | 100 0 .. | .. | .. | .. | .. |
| 5000 Grosvenor (id.) [£2500 £12 1/2 pd.] 2500 7s. 6d. pd.] .. | — .. | .. | .. | .. | .. |
| 4910 Gurllyn (cop., tin), St. Erth .. | 2 5 5 .. | .. | .. | .. | .. |
| 6068 Gwydir Park Con., Llanrwst .. | 0 19 0 .. | .. | .. | .. | .. |
| 6400 Harwood (id.), Durham [L. £1] .. | 0 5 6 .. | .. | .. | .. | .. |
| 7219 Hawkmoor (tin, cop.), Calstock .. | 3 2 0 .. | .. | .. | .. | .. |
| 6000 Hington Down (cop.), [S.E.] .. | 5 8 6 .. | .. | .. | .. | .. |
| 6000 Holmabus [£5 2s. pd., 5000 15s. pd.] .. | — .. | .. | .. | .. | .. |
| 6000 Illogan (tin and copper) .. | 0 10 0 .. | .. | .. | .. | .. |
| 5000 Isle of Man (slate) .. | 2 0 0 .. | .. | .. | .. | .. |
| 6000 Kewstow (lead), Portscall .. | 5 6 6 .. | .. | .. | .. | .. |
| 6000 Lady Bertha (cop.) [S.E.] .. | 2 12 0 .. | .. | .. | .. | .. |
| 1018 Leeds & St. Aubyn (tin, cop.) .. | 17 6 4 .. | .. | .. | .. | .. |
| 963 Lelant Cons. (tin), Uny Lelant .. | 35 0 0 .. | .. | .. | .. | .. |
| 210 Llangua (id.), Glamor. [L. £28] 15 0 .. | .. | .. | .. | .. | .. |
| 4000 Llanwit-Yardre (coal), [L. £25] .. | 3 10 0 .. | .. | .. | .. | .. |
| 2000 Long Rake (lead), Flint .. | 4 5 0 .. | 5 .. | 4 5 .. | 4 5 .. | .. |
| 2000 Lower Park Denbighshire [L.] .. | 3 7 0 .. | .. | .. | .. | .. |
| 10000 Lower Taldrews (slate) [L.] .. | 2 10 0 .. | .. | .. | .. | .. |
| 6500 Maudlin (copper) .. | 3 17 0 .. | .. | .. | .. | .. |
| 4480 Merllyn (lead), Flint .. | 3 18 0 .. | .. | .. | .. | .. |
| 23000 Merryfield (lead) [L.] .. | 0 12 0 .. | .. | .. | .. | .. |
| 4575 Michell (lead), Flint .. | 0 5 6 .. | .. | .. | .. | .. |
| 1024 Mill Pool (copper) .. | 15 15 0 .. | .. | .. | .. | .. |
| 5000 Moilland (cop.), S. Moulton .. | 2 9 6 .. | .. | .. | .. | .. |
| 1024 Naungles (tin, copper), Ken. .. | 14 0 0 .. | 26 .. | 26 1/2 .. | 27 1/2 .. | .. |
| 5000 Nanticoe (sl.-ld.), Llanrwst .. | — .. | .. | .. | .. | .. |
| 5000 Nanteos (sl.-ld.), Llanrwst .. | — .. | .. | .. | .. | .. |
| 5000 Nantwich (lead), Flint .. | 3 12 0 .. | .. | .. | .. | .. |
| 512 Nant Miners (L. £20) .. | 4 16 0 .. | .. | .. | .. | .. |
| 2400 Nan-y-Iago (id.), Merioneth .. | 3 17 6 .. | .. | .. | .. | .. |
| 6400 Nether Heath (lead), Dalton .. | 15 15 0 .. | .. | .. | .. | .. |
| 6400 N. Crow Hill (id.), St. Stephen .. | 2 8 6 .. | .. | .. | .. | .. |
| 6000 New E. Birch Tor and Titterif .. | — .. | .. | .. | .. | .. |
| 6510 New E. Wh. Russell, Tavistock .. | 0 6 0 .. | .. | .. | .. | .. |
| 400 New Hendra (tin, cop.), Breage .. | 1 10 0 .. | .. | .. | .. | .. |
| 6400 New Pembroke (tin and cop.) .. | 0 6 6 .. | .. | .. | .. | .. |
| 6000 New S. Caradon (cop.), St. Cleer .. | 10 0 6 .. | .. | .. | .. | .. |
| 6000 New Treleigh Cons., Wendron .. | 1 18 0 .. | .. | .. | .. | .. |
| 960 New Treneglos (tin), Wendron .. | 5 7 0 .. | .. | .. | .. | 5 1/2 .. |
| 1024 New Wendron (tin) .. | 7 0 0 .. | 6 1/2 .. | .. | .. | .. |
| 1024 New Wh. Grylls (tin and cop.) .. | 2 3 6 .. | .. | .. | .. | .. |
| 10000 New Wheat Martha (cop.) [L.] .. | 1 0 0 .. | 3 .. | 2 1/2 .. | 3 .. | .. |
| 6000 New Wheat Prospidin .. | 0 7 6 .. | .. | .. | .. | .. |
| 2500 N.W. V. Addon (tin), Marlosion .. | 1 8 0 .. | .. | .. | .. | .. |
| 1024 North Buller (cop.), Redruth .. | 24 12 6 .. | 7 .. | 4 5 .. | 4 5 .. | .. |
| 6000 North Clifford (cop.), Gwennap .. | 0 5 0 .. | .. | .. | .. | .. |
| 20000 North Devon (sl.-ld.) [L. £1] .. | 0 12 0 .. | .. | .. | .. | .. |
| 5000 N. Doloeath (cop.), Camborne .. | 2 18 6 .. | 2 1/2 .. | .. | .. | .. |

* * * Those mines with [S.E.] appended have been admitted on the Stock Limited.

* * * Our object being to make the Share List correct, we earnestly call upon those which may, from time to time, come under their notice. To share information. Reports from mines—in fact, mining intelligence of every

*¹² Those mines with [S.E.] appended have been admitted on the Stock Exchange. Those mines with [L.] appended have been incorporated with Limited Liability.

* Our object being to make the Share List correct, we earnestly call upon all who have the power, to aid us, by forwarding any alterations or correction which may, from time to time, come under their notice. To shareholders, as well as those officially connected with the mines, we appeal for information. Reports from mines—in fact, mining intelligence of every description, forwarded to our office, will meet ready attention.